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JANUARY 1966 Vol. XVIII, No. 1

Several changes in the editorial leadership have become effective with this issue. RONALD L. MIGHELL replaces REX F. DALY as the economist Editor and some changes and additions have been made in the Editorial Board to provide better coverage of the economic and statistical research in ERS and cooperating agencies. The new editorial staff is as follows:

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A Look Ahead for Food and Agriculture

By R. F. Daly and A. C. Egbert¹

No one can exactly anticipate future changes in demand, technology, production, and prices of farm products. Yet farmers, legislators, and administrators are forced to make decisions each day that have impacts extending well into the future. They look to the economist and statistician to appraise current and prospective trends in agriculture as guides in decision-making in a free economy. Projections in this article roughly sketch some trends and developments considered likely in agriculture during the next 10 or 15 years. They are not precise estimates nor are they plans based on specific program assumptions. The appraisal points out likely demand changes and probable growth in the output potential of U.S. agriculture.

AGRICULTURE in the United States is a complex, dynamic industry. There are many forces that will shape it in the future. These include population and income growth, technological changes both inside and outside agriculture, foreign market developments, and shifting consumer preferences. Agricultural output will continue to grow as domestic and export markets expand. Although per capita use of farm products is expected to change little, there will be substantial changes in diet, in relative prices, and in the organization and use of resources in agriculture.

Appraisals of output potential, resulting from technology and other economic forces, lead to the overriding conclusion that farm output can more than keep pace with population growth and other factors expanding the domestic demand for farm products in the next 10 to 15 years. It can also keep pace with an export expansion during the next 10 years equal to the increases of the 1950-60 decade and still leave around 10 percent of our cropland resource idle. Moreover, if all cropland currently diverted from production under various programs were brought

under cultivation, crop output could be increased at least 60 percent above the 1959-61 average by 1980.

Further reductions in the number of farms are in prospect as smaller farms are consolidated into larger commercial family farms. Continued substitution of capital and other inputs for labor and land will result in great gains in productivity as well as shifts in the organization and use of resources in farming.

Although projections imply little overall change in total resource inputs, increases in land and capital inputs are indicated for the larger commercial farms. Large increases in investment and working capital would accompany shifts in the organization of agriculture. An agriculture of large units implies changes in traditional extension work, research, and possibly in the role of Government.

A number of changes during the last two and a half decades have raised agriculture's output potential 70 to 80 percent. Technological advances, including hybrid seed, fertilizer, insecticides, disease controls, and feeding techniques, have been rapid in agriculture. These

¹ Although the authors are largely responsible for preparing this report, the work was carried on under the general direction of the ERS Committee on Economic Projections--R. F. Daly, Chairman; Glen Barton, Robert Olson, Mark Regan, and Quentin West. Several ERS staff members, including J. D. Ahalt, Don Durost, and Jim Naive, participated in various phases of preparation. Others of the ERS staff provided basic data and assisted in developing and appraising the projections. These included W. Askew, H. Bluestone, M. Clough, A. Conover, J. Donald, G. Kromer, D. Kuryloski, A. Mathis, B. Pubols, and R. Rizek.

developments have led to a greater commercialization of farming with more and more of productive inputs coming from outside agriculture. Family farms have larger acreages per farm, with more capital, but with little change in labor use per farm. For agriculture as a whole, the downtrend in the use of labor has been largely offset by increased use of capital; combined resource inputs--land, labor, and capital--have changed little in the last 15 years.

Consumption patterns, too, have changed. With rising incomes, shifting tastes, development of substitute products, and lower relative prices, food consumption trends have in general been away from lower cost, starchy foods toward more costly high-protein and processed foods. Development of substitute products has made inroads on normal use patterns, particularly for fibers and industrial oils.

Foreign markets for U.S. agricultural products have increased more rapidly than domestic markets, with the expansion in commercial exports and the step-up in export assistance under Food for Peace programs.

Projections in this report draw on numerous analyses and appraisals. Some are based on formal statistical models, others only on trends and a knowledge of factors affecting them. Accordingly, the projections consider, implicitly or explicitly, important factors which will shape the growth and development in agriculture in the years ahead. The picture of the agriculture of the future is a rough sketch, rather than a map of estimates of demand, output, and organization of agriculture.

Export projections assume levels that would be attained if quantity increases for each decade from 1960 to 1980 about matched the quantity increase of the 1950-60 decade.² For some commodities, particularly feed grains and vegetable oils, this assumption may turn out to be low if more recent trends continue.

Although policy assumptions are difficult to specify in long-run appraisals, the projections

imply some type of program to stabilize farm prices and income. Finally, the projections assume no extended war or depression.

Domestic Markets For Farm Products³

Population increased by 26 percent from 1950 to 1964, when it was 192 million. Projections of most likely population growth (Census Bureau B alternative) push the total to 245 million by 1980 (fig. 1). Growth in the next few years will approximate 1.4 percent per year compared with the 1.6 annual growth rate from 1950 to 1964. A population of 245 million people by 1980 would be about 28 percent above 1964, an annual growth rate a little below 1.6 percent. While most rapid growth occurred in age groups under 19 and over 65 years old from 1950 to 1964, largest increases in the next 15 years will be in age groups 20-24 and 25-34 years as the postwar upsurge in births moves into these age groups. Such changes in the age composition of the population will have important impacts on growth in the labor force, on family formation, on the burden of school facilities, and on consumer purchases for food and other goods

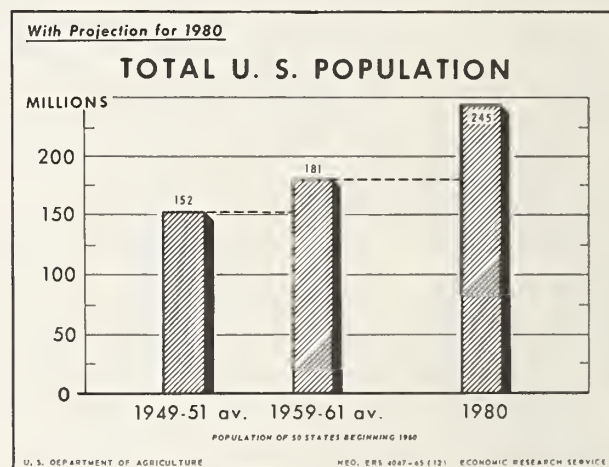


Figure 1

² There is great uncertainty about foreign import demand and its implication for U.S. agricultural exports. Much of this uncertainty arises from changing Government policies--both foreign and domestic--and the rate of economic development throughout the world.

³ A statistical supplement which presents data on which the following charts are based and also presents commodity supply and distribution detail is available on request from the Outlook and Projections Branch, ESA, ERS, USDA.

and services. It is not possible, however, to measure accurately the impact of prospective changes in the age composition of the population on demand for farm products. The younger age groups are known to be heavy consumers of food, but at the same time, numbers in the older age groups, who consume less than the average, also will be increasing.

During the last 15 years the economy, as measured by the gross national product, grew at an annual rate of nearly 3.7 percent a year. With rising output per man-hour and a somewhat more rapid growth in prospect for the labor force, the economy is expected to expand by possibly 4 percent a year during the next 10 to 15 years (fig. 2). A projected increase in the gross product of around 75 percent from 1965 to 1980 would result in a gain of about 40 percent per capita in consumer buying power. This represents an annual gain of around 2.3 percent.

Food consumption per person does not change much in response to rising income at the high consumer-income levels of recent years. Buying power per person is estimated for 1965 to have been some 37 percent above the 1949-51 average. During this same period the index of per capita food consumption increased only 3 percent. Retail food prices rose, but more slowly than the consumer price index for all goods and services. The moderate rise in per capita food use reflected primarily an upgrading in the diet toward higher priced livestock products and processed foods. Pounds of food and calories consumed per person have trended slightly downward in the postwar years. Small changes are projected in these measures of combined food consumption per person during the next 10 to 15 years, although modifications in the diet will continue with rising incomes and changes in relative prices of different foods.

Trends In Our Eating Habits

The eating habits of the average American have changed materially in the past and are likely to do so in the future. Some of these diet changes have been underway for several decades. For example, the decline in per capita consumption of potatoes, wheat, and butter began five or six decades ago. On the other hand, per capita use of fluid and condensed milk

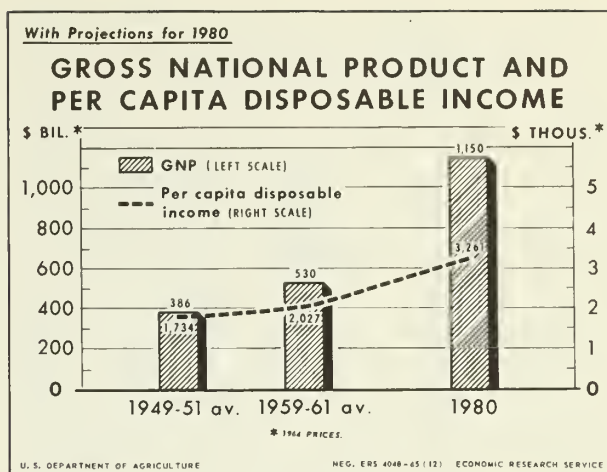


Figure 2

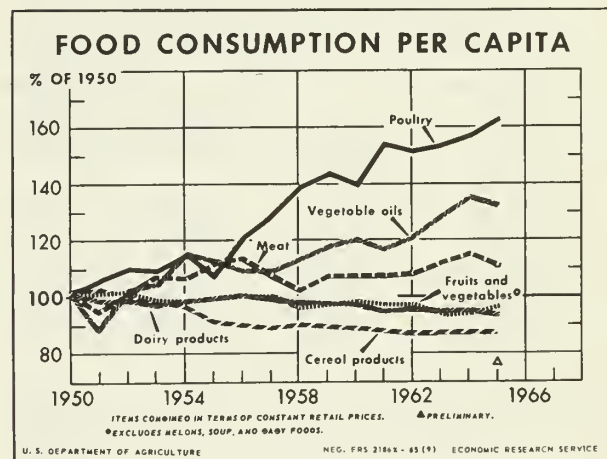


Figure 3

has been falling for about two decades and the decline in egg consumption only began during the 1950 decade. Per capita use of food fats and oils and combined use of fruits and vegetables have remained relatively steady (fig. 3). These longer-run trends in consumption patterns result primarily from trends in relative prices, changing tastes, introduction of convenience foods, rising incomes, changes in the type of work, and farm-to-city migration of rural people.

Shorter-term variations in diets also occur with changes in relative prices (fig. 4). These result mainly from changes in supply associated with production cycles, seasonal variations, and the weather. In some instances, dramatic

changes in supply occur as a result of technological developments which expand output faster than demand. Technological developments in the poultry industry contributed materially to the sharp decline in prices for chicken, turkey, and eggs. These declines were accompanied by large increases in consumption of chicken and turkey. Despite lower prices and rising incomes, per capita use of eggs has declined, and this suggests a decline in consumer preference. This demand shift may have been related to health considerations, rural-to-urban population shifts, and possibly other factors. Pork consumption per person likewise has declined despite rising incomes and declining prices. Except for cheese and ice cream, per capita consumption of dairy products has trended downward. Declines for these products have been accompanied by little change in prices.

Prices received by farmers have fluctuated in a relatively narrow range--230 to 240 (1910-14=100)--during the last decade, except for the advance in 1958. The crop price index ranged from 222 to 240, trending downward until 1960 and upward since (fig. 5).

The livestock product price index varied between 225 to 255, except for a sharp advance to 273 in 1958. After 1958, livestock product prices trended downward to a low of 235 in 1964. With reduced supplies of meat in 1965, the price index rose to almost 270 by midyear.

Projected prices for farm products generally fall in the range of recent years. An increase in prices is projected for livestock products, particularly from the reduced levels of 1964. Projected prices for crops trend slightly lower than the average of recent years. On balance, price levels projected for farm products as a whole average close to 1964 levels.

The strong demand for beef and veal is expected to expand further and lead to increases in per capita consumption, possibly to around 117 pounds by 1980 (fig. 6). This level compares with around 105 pounds in 1964. Thus, total domestic demand for beef projected for 1980 ranges some 40 to 50 percent above the high 1964 production rate, which was near the top of the production cycle. On the other hand, per capita use of pork is expected to decline moderately, from 65 pounds in 1964 to less than 60 pounds by 1980. With this moderate decline in per capita use, the total domestic market for

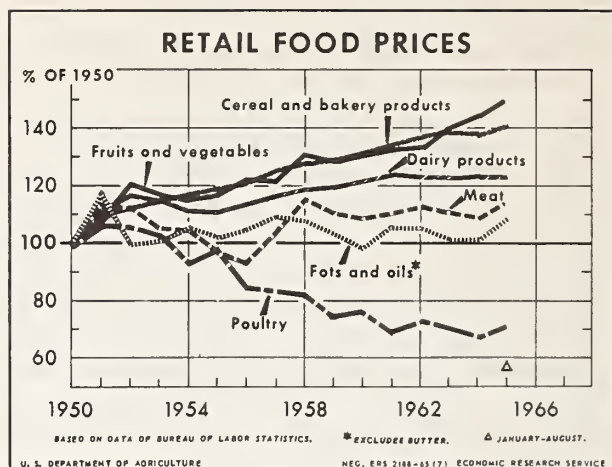


Figure 4

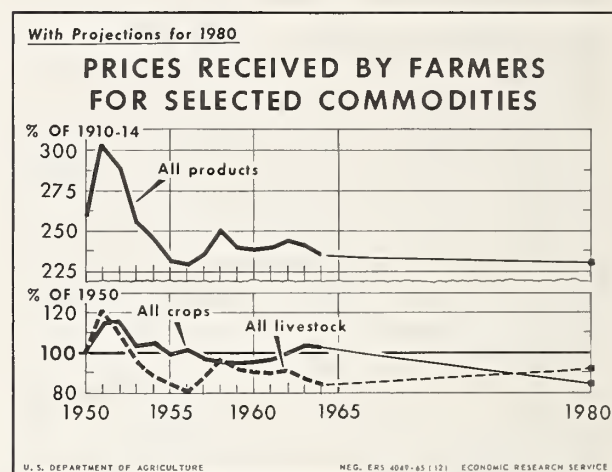


Figure 5

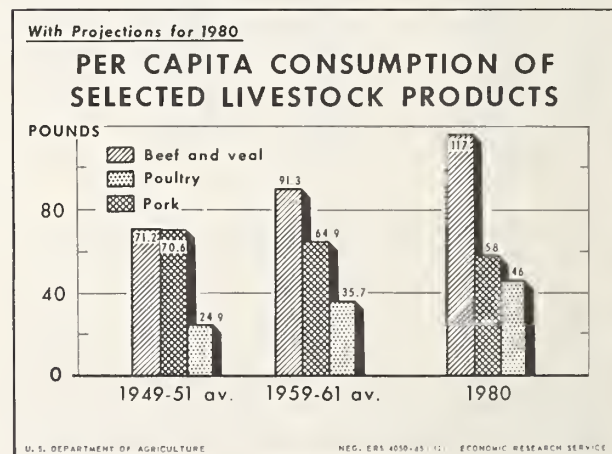


Figure 6

hogs is projected to increase around 16 percent from 1964 to 1980. Consumption of chicken and turkey per person probably will continue to expand with rising incomes and prospects for further price declines as production efficiency improves. Projections for 1980 point to an increase of around 50 percent from 1964 in total consumption of poultry.

The downtrend in per capita consumption of eggs is expected to continue, though at a slower rate than during the last decade. Accordingly, domestic consumption of eggs is projected to rise nearly one-fifth from 1964 to 1980 (fig. 7). Similarly, a further, but moderating, decline in per capita consumption of all milk products is projected. Declines in per capita use are in prospect mainly for fluid milk and cream, condensed milk, and butter; consumption gains appear likely for ice cream and cheese. Combined domestic use of milk products projected for 1980 totals around one-fifth larger than in 1964.

Per capita consumption of food fats and oils is likely to remain steady over the next 15 years, much as it has in the past (fig. 8). Moreover, the shift from animal to vegetable sources is expected to continue. The proportion of animal fats in total per capita consumption of food fats and oils was nearly 50 percent in 1949-51, but it fell to 30 percent in 1959-61. This proportion is projected to decline, possibly to around 20 percent of the total by 1980.

Potato consumption per person over the next 15 years may change little (fig. 9). An up-trend in use of potatoes in frozen and processed products is likely to be largely offset by further reductions in fresh uses. Total consumption of potatoes projected for 1980 is around one-fourth larger than in 1964, or about equal to population growth. Per capita consumption of fruit and other vegetables is projected to rise some in the coming years with increased use of processed (canned, frozen, dried) items. Vegetable consumption in total is projected to be one-third larger in 1980 than in 1964. A somewhat bigger gain is indicated for fruits from the relatively low level in 1964 when citrus production was still recovering from earlier freeze damage.

As noted earlier, per capita consumption of wheat products has been declining over a half century. The decline in the future is expected to moderate as the rural-to-urban population shift

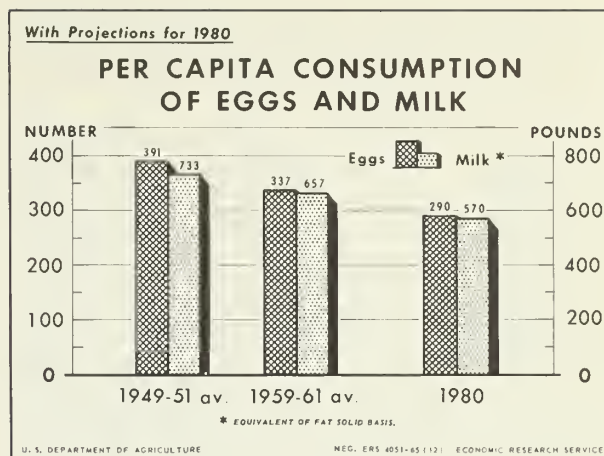


Figure 7

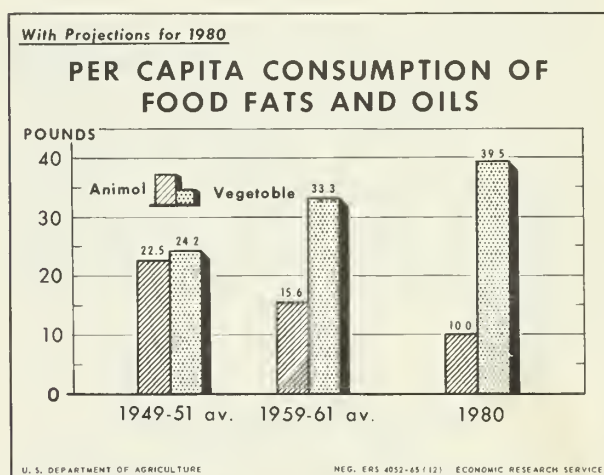


Figure 8

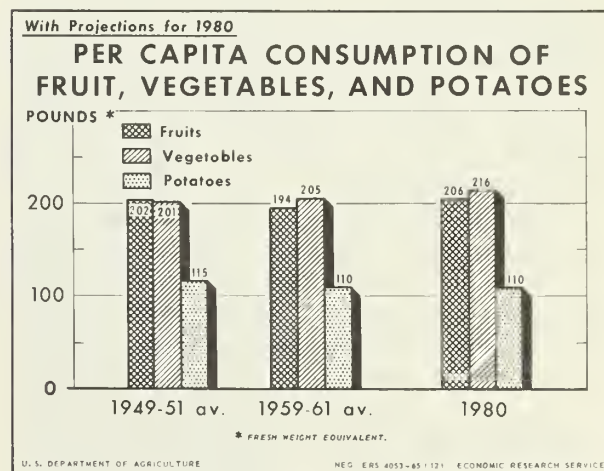


Figure 9

approaches its limit and as the shift to sedentary occupations abates. But total domestic food use of wheat may increase little from levels in recent years (fig. 10).

Per capita food use of other cereals--corn, rice, rye, oats, and barley--as a group may continue to increase slightly. There has been a small increase in per capita consumption of corn products and of rice in recent years.

Nonfood uses of farm products--cotton, wool, tobacco, fats and oils, and some grains--dropped sharply during much of the 1950's (fig. 11). Increased use of a number of synthetic products has limited the use of farm products in traditional markets for fibers, soaps, and paints. Nonfood uses in total are projected to decline further, but at a much slower pace than in postwar years.

Per capita consumption of cotton, in the face of stiff competition from man-made fibers, has been declining since World War II. The future competitive position of cotton will depend to a large degree on the prices domestic mills must pay for cotton, prices of substitute man-made fibers, and technological developments. Some improvement in the competitive position of cotton in domestic and export markets is in prospect.

The Demand For Feed

Total domestic demand for livestock and livestock products is projected to increase by 1980 somewhat more rapidly than the expected rise in population. Per capita consumption of all livestock and livestock products, in terms of 1957-59 farm prices, is projected some 5 percent above the 1959-61 average by 1980. At these per capita rates, total domestic use of livestock products would be about 40 percent above the 1959-61 average.

Projected expansion in livestock output largely accounts for the estimated rise in the demand for feed concentrates (fig. 12). But with favorable livestock-feed price relationships assumed and the trend toward a larger proportion of grain-fattened beef, the increase in feed use is projected to rise slightly faster than livestock production. Accordingly, projected use of total concentrates rises to about 231 million tons by 1980. This is an increase over the average of

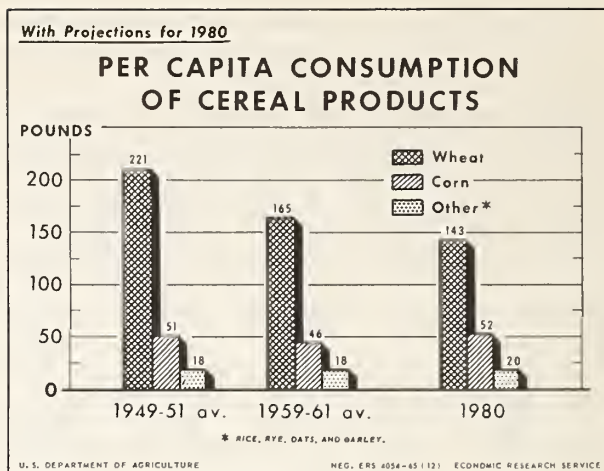


Figure 10

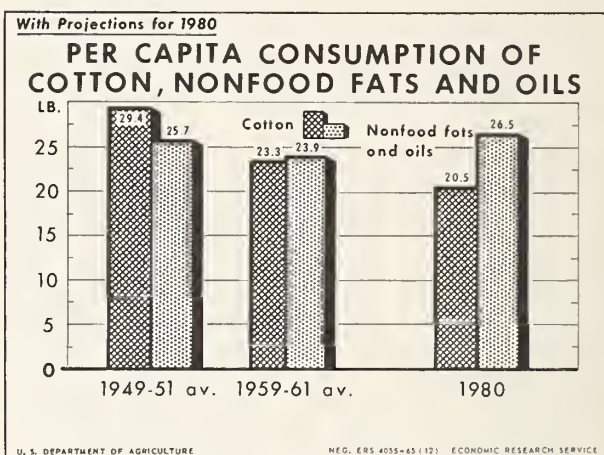


Figure 11

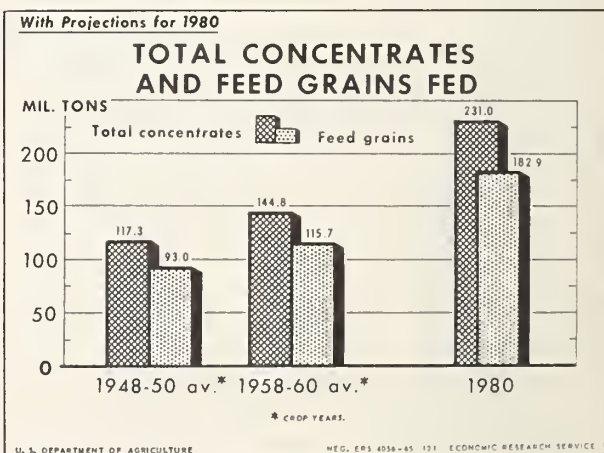


Figure 12

1958-60 feed years of about 60 percent. Use of the four major feed grains is estimated to expand by about 53 percent over 1958-60 by 1980. Consumption of high-protein feed is estimated to increase slightly faster than that of other concentrates, reflecting a continuation of postwar shifts to higher protein rations and projected changes in the livestock output mix. However, use of urea as a high-protein feed supplement--a recent innovation--may significantly depress the demand for conventional high-protein feeds.

Export Markets

Over the last decade, U.S. crop exports have more than doubled, reflecting expanding commercial markets and greatly increased exports under P.L. 480 and other export assistance programs. In recent years, there has been an upsurge in commercial exports, especially of soybeans, soybean meal, and feed grains. Exports of livestock products have nearly tripled since 1950, but the dollar value is still small compared to crop exports. The large increases have come in poultry, nonfat dry milk, and butter (fig. 13).

Exports in the years ahead will depend on a number of factors. Among these are export programs of the United States, agreements set up among competing nations of the world, domestic policies affecting imports and exports, growth in population and income, and technological developments at home and abroad that affect food and fiber production. Because of the uncertainties surrounding these factors, exports are assumed to increase much as they did during the 1950's.

A further rise in both crop and livestock exports is assumed, although livestock exports will likely remain a small percentage of total agricultural exports.

Crop exports are projected to rise about 75 percent above the 1959-61 average by 1980. Over this period, crop exports will continue to be about 20-25 percent of total crop output.

Under the export assumption, wheat exports would be about 85 percent above 1959-61 by 1980 and amount to about 1,100 million bushels (fig. 14).

Feed grain exports are expected to expand, especially to Western Europe and Japan where

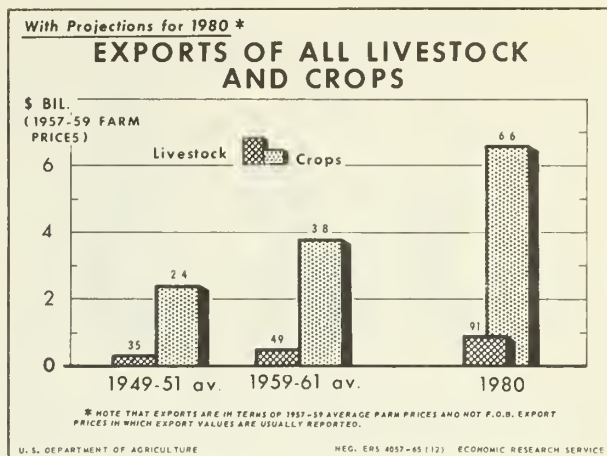


Figure 13

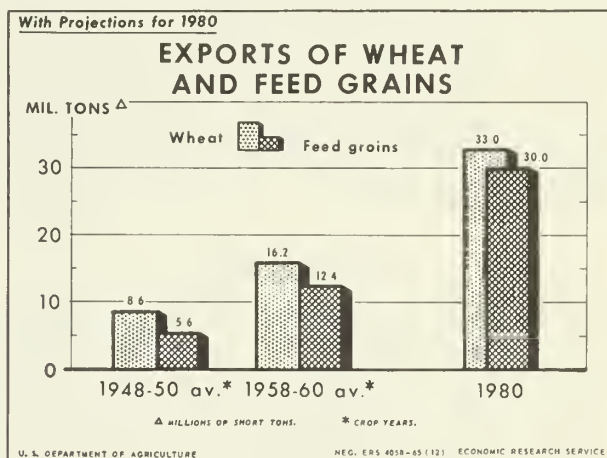


Figure 14

rising incomes are stepping up the demand for livestock. These exports would reach 30 million tons by 1980. This rate of increase is well below the rapid increase during the past 5 years. However, with full use of diverted land feed grain exports could easily be more than doubled.

Cotton exports have varied widely over the last decade, averaging about 5 million bales. In recent years there has been increasing competition from Mexico, Egypt, and a few other areas. However, cotton exports under the assumed trend would total about 7 million bales by 1980 (fig. 15).

Exports of oilseeds and oilseed products, particularly soybeans, have increased dramatically during recent years, usually exceeding



Figure 15

the most optimistic expectations. Exports of soybeans and soybean products (soybean oil meal and soybean oil) are projected to be over 3 times the 1958-60 average by 1980. This is equivalent to about 580 million bushels of soybeans by 1980. This export level would make soybeans and soybean products second only to wheat in total value.

Farm Output

Crop output--projected on the basis of demand assumptions, crop prices, and technology--increases at 1.9 percent per year over the next 15 years. This amounts to a total increase in crop production of 46 percent by 1980. Although food use of crops is expected to rise slightly less than this rate, feed uses which make up 40 percent of total crop output are projected to increase a bit faster as demand for livestock products increases. Exports, too, are expected to increase at a rate more rapid than output. Largest production gains among the crops are expected for soybeans, feed grains, and some fruits and vegetables.

Crop production, however, could be much higher than this projected level if all the cropland presently diverted under the various programs were planted to crops. If we assume that this will be the case and also that cropland use will be in line with current trends, crop production could be almost 60 percent above the 1959-61 output level by 1980 (alternative II in figures 16-19 and table 1). These output levels

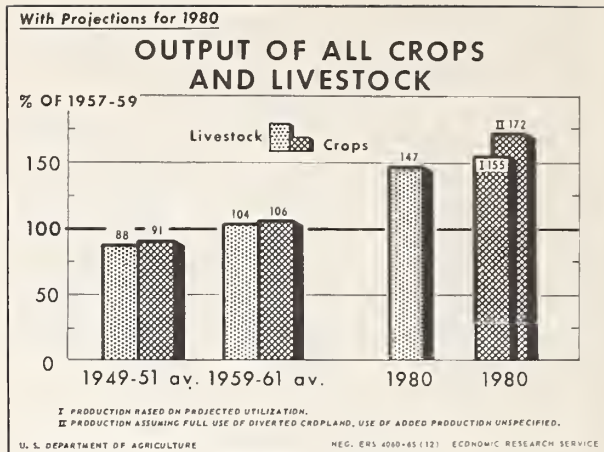


Figure 16

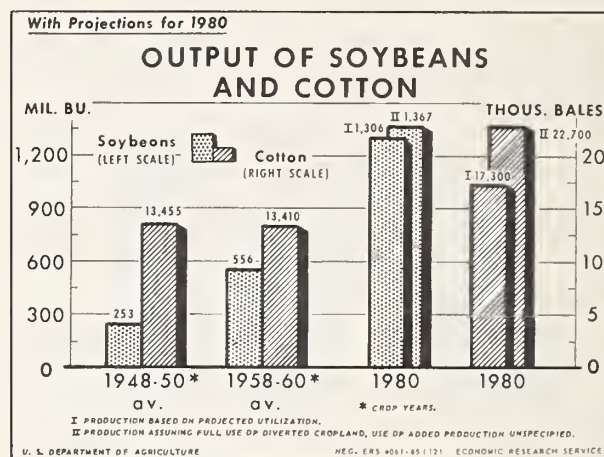


Figure 17

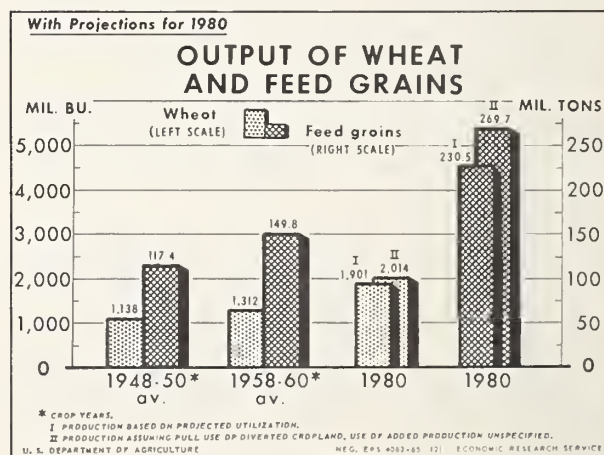
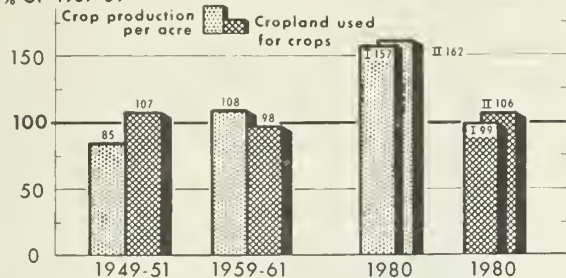


Figure 18

CROPLAND USED FOR CROPS AND CROP PRODUCTION PER ACRE

% OF 1957-59



I CROPLAND REQUIRED FOR PROJECTED UTILIZATION.

II CROPLAND REQUIRED PLUS DIVERTED CROPLAND.

U. S. DEPARTMENT OF AGRICULTURE

NEC ERS 4081-85 121 ECONOMIC RESEARCH SERVICE

Figure 19

Table 1.--Crop acres harvested, yield per harvested acre, 1949-51 and 1959-61 averages, 1964, and projections for 1980 under two alternatives

(calendar year)

Commodity	Average		1964	Projections to 1980	
	1949-51	1959-61		I ²	II ³
Acres harvested:					
Corn for grain...Mil. acres.	73.6	67.4	57.1	64.2	78.2
Oats.....do.....	37.4	26.1	20.4	13.5	11.5
Barley.....do.....	10.2	13.9	10.7	11.9	10.0
Grain sorghum.....do.....	8.5	14.0	11.9	16.3	21.0
Wheat, all.....do.....	66.5	51.7	49.2	57.1	62.0
Rice.....do.....	1.8	1.6	1.8	1.6	2.2
Soybeans.....do.....	12.6	24.4	30.7	43.2	45.4
Peanuts.....do.....	2.2	1.4	1.4	1.0	1.4
Cotton.....do.....	24.1	15.4	14.1	11.5	15.0
Hay, all.....do.....	74.3	66.9	67.9	57.3	60.3
Other crops.....do.....	38.6	34.3	35.9	40.0	40.0
Total cropland harvested ¹do....	341.3	310.0	294.6	312.6	340.0
Yield per harvested acre:					
Corn for grain.....Bu....	37.8	56.2	62.1	101.1	100.1
Oats.....do.....	34.5	41.1	43.2	60.0	60.0
Barley.....do.....	26.1	29.9	37.8	42.0	42.0
Grain sorghum.....do.....	21.4	39.4	41.1	52.7	51.3
Wheat.....do.....	15.6	23.9	26.2	33.1	32.5
Rice.....do.....	2,328	3,381	4,095	5,200	5,200
Soybeans.....do.....	21.6	24.1	22.8	30.1	30.1
Peanuts.....do.....	842	1,218	1,551	2,300	2,300
Cotton.....do.....	275	449	524	725	725
Hay, all.....do.....	1.39	1.72	1.71	2.50	2.50

¹ Does not equal total harvested acreage due to double cropping.² Cropland use and yields based on projected utilization.³ Cropland use and yields assuming full use of diverted cropland, use of added production unspecified.

are more than 10 percent above projected use of crops in 1980, and they illustrate how much total demand for U.S. crop production could be expanded both for domestic use and for exports without any special land or other resource development programs. Moreover, if this production potential could be used to increase exports alone, exports in total could be at least

40 percent higher than the projected levels in 1980.

Production of livestock products, responding to projected increases in demand, rises slightly faster than population. Largest output increases are expected for beef and poultry. Production of hogs, milk, and eggs is projected to rise, but at a rate slower than population growth.

Around 335 million acres of cropland are currently used for crops, with some 55 to 60 million acres withheld from production under the Conservation Reserve and grain programs. The decline in acreage used for crops in the last decade was accompanied by improved technology, increased resource use per acre, and a dramatic increase in crop yields. With continued improvements in farm technology and rising yields, projected output requirements, under alternative I, point to little if any increase in the acreage of cropland used for crops. Large yield increases and limited demand expansion point to smaller acreages for cotton and minor feed grains and possibly for wheat. Larger acreage requirements are projected for soybeans, corn, and a number of miscellaneous crops.

Under alternative II, with the diverted acreage coming back into production, there would be major shifts in crop production, particularly for wheat, cotton, soybeans, corn, and grain sorghum. It was assumed that acreage withheld from production would in general move back as wheat, corn, or cotton land, for example. However, such trends as the contraction in oat acreage and the expansion in soybean acreage were assumed to continue. Total cropland used for crops would about equal the average level for 1949-51. It should be pointed out, too, that demand pressures and relative prices also could modify the acreage pattern.

Output under full use of diverted cropland would rise sharply as land was brought back into production. After this initial upsurge, output could continue along the present trend in output growth as a result of the development and adoption of new technology. Output per acre, consequently, would be nearly the same under both land use alternatives. The slightly higher output per acre under the higher acreage alternative results from an acreage mix which includes proportionately more high-yielding crops, particularly cotton and corn.

A Random Sample Using Limited Mail Questionnaires and Nonresponse Interviews

By Charles E. Rogers

OFTEN A RANDOM SAMPLE is desired from a population or substratum to produce data for a specified characteristic. In many such situations, a combination of mailed questionnaires and interviews may be used to produce the data at less cost than by interview alone. This method is especially desirable for data which may be collected with equivalent quality by either mail or personal interview. One method is to draw a random sample and interview all nonrespondents to a mailed questionnaire. However, this leaves a variable number of interviews to be conducted and all must be completed.

This paper presents a method which will produce a random sample when the number of interviews must be predetermined. The method might also be adapted to assure a random sample when interviewing may be only partially completed. The sample size depends upon the number of interviews and the actual rate of voluntary returns by mail for a specific subset from a random ordering of the total list. A weighting together of respondent and non-respondent groups is not required in the estimation and analysis.

The method is relatively simple. A population of N elements, which are mutually exclusive for the characteristic to be estimated, is listed so that each element appears once and once only. If these N elements are randomly ordered and then serially numbered, any consecutive n elements from a random start will give a simple random sample of size n . Essentially the same result may be achieved by selecting from the original listing a random sample ordered by draw or by selecting a systematic sample and randomly ordering the n elements selected.

Notation:

N = elements in population

n = elements selected as potentially in the sample

t_1 = interviews to be made

t_2 = mail returns usable in the final ordered sample

$t = (t_1 + t_2)$ = total usable returns in final sample, and $t \leq n$

p = the probability of a mailed questionnaire being returned

q = the probability of a nonresponse from mailed questionnaires

$q = 1 - p$

The survey procedure is to mail a questionnaire to each of the n selected elements and to interview t_1 nonrespondents to this mail survey.

The number of nonrespondent interviews is limited to t_1 and the decision as to the number of

interviews must be made in advance. To preserve randomness in the final sample the first t_1 nonrespondents on the randomly ordered list are interviewed. The sample will then consist of the ordered elements from the n selected until the first is reached for which no interview is available. This will constitute a random sample of $t_1 + t_2$ elements. The sample estimates of the specified characteristics are computed from this sample.

The sample size to be initially selected (n) is dependent on the number of interviews to be taken (t_1) and the expected rate of mailed returns (p). In the determination of initial sample size (n), the expected rate of mail return is critical. When there are less than t_1 nonrespondents, the size of the constituted sample is restricted and precision is correspondingly reduced. The expected rate of mailed returns must be estimated in advance and the accuracy of this estimate is important because enough questionnaires must be mailed to obtain the number of nonrespondents for which interviews are planned, but as few extras as possible since these may have to be discarded.

There is some evidence that the value of the characteristic may affect the decision of the respondent to return or not return a questionnaire. This may, under this system, affect the sample size because of (1) clustering of either large or small-valued elements in the ordered list, or (2) difference of the mean of the ordered list from the mean of the population.

This effect of the value of the characteristic on the sample size must not prevent stochastic independence of the mean of the sample and the size of the sample if the conditions of random sampling are to be fulfilled. Consider that:

(1) The selected sample is merely one sample from all possible samples in the population since it was randomly selected.

(2) This sample ordering is one from all possible orderings since it was a random process.

In repeated trials these random processes obviously result in equally likely combinations of size n , and each such combination contains a specified subset of elements which will produce an effective sample of t elements that is independent from those of other combinations.

From another viewpoint, the sample estimate may be considered as consisting of two parts: the mean of the interview portion and the mean of the mailed portion. These means are, in effect, weighted by the respective proportions of the usable sample falling in each. Let:

$$\bar{X} = \hat{W}_1 \bar{X}_1 + \hat{W}_2 \bar{X}_2 \text{ where } \hat{W}_1 = \frac{t_1}{t} \text{ and } \hat{W}_2 = \frac{t_2}{t}$$

Further, let $\hat{W}_1 = W_1$ and $\hat{W}_2 = W_2$ when the entire sample of n elements is used for estimation. When all of the elements are used, the sample may be considered as fixed in size and the mean estimator is known to be unbiased and have minimum variance. The difference in weights may be considered as adding a component of variation. The fixed size sample estimator may be written as $\bar{X}' = W_1 \bar{X}_1 + W_2 \bar{X}_2$.

The difference (D) is:

$$(\bar{X}' - \bar{X}) \text{ or } (W_1 \bar{X}_1 + W_2 \bar{X}_2) - (\hat{W}_1 \bar{X}_1 + \hat{W}_2 \bar{X}_2)$$

Since $W_1 = 1 - W_2$ and $\hat{W}_1 = 1 - \hat{W}_2$ this difference reduces as follows:

$$[(1 - W_2) \bar{X}_1 + W_2 \bar{X}_2] - [(1 - \hat{W}_2) \bar{X}_1 + \hat{W}_2 \bar{X}_2]$$

$$\bar{X}_1 - W_2 \bar{X}_1 + W_2 \bar{X}_2 - \bar{X}_1 + \hat{W}_2 \bar{X}_1 - \hat{W}_2 \bar{X}_2$$

$$\hat{W}_2 \bar{X}_1 - W_2 \bar{X}_1 + W_2 \bar{X}_2 - \hat{W}_2 \bar{X}_2$$

$$(\hat{W}_2 - W_2) \bar{X}_1 - (\hat{W}_2 - W_2) \bar{X}_2$$

$$\text{and (D)} = (\hat{W}_2 - W_2) (\bar{X}_1 - \bar{X}_2)$$

With the random ordering, the two quantities $(\hat{W}_2 - W_2)$ and $(\bar{X}_1 - \bar{X}_2)$ should be independent and the expected value of D should equal zero. However, variation in D may add to variation of the mean estimate by the amount of D^2 . Hence, this estimator will not be a minimum variance estimator. In general, D^2 is likely to be quite small even if n is less than 100 since $(\hat{W}_2 - W_2)^2$ will usually be small.

Obviously, t (the total usable sample) may vary from t_1 to n . Sandelius has shown that for finite populations and nonsequential sampling the usual mean estimate and its variance are unbiased estimates of the parameters even though sample size is a random variable.¹ He further shows that these unbiased estimates are probably not "best" estimates as defined in cases of fixed sample size since unique "best" estimates (in terms of minimum variance) generally do not exist for samples which vary in size. However, they are conditional best linear unbiased estimates and provide the most logical estimation procedure.

The proof of unbiasedness consists of using a given sample $(x_1 x_2 \dots x_t)$ with θ a parameter to be estimated. Let E_t be the conditional expectation for fixed t and $g = g(x_1 x_2 \dots x_t)$ be a function of the sample values with the property

¹ Martin Sandelius, "On Non-sequential Estimation when the Sample Size is a Random Variable," reprinted from Ann. Roy. Agr. Col. Sweden, Vol. 17, pp. 400-406, 1950.

$E_t g = \theta$ so that g is a conditional unbiased estimate of θ . Then it can be shown that $Eg = E(E_t g) = \theta$. Further, let $\text{Var}_t g = E_t (g - \theta)^2$ and let $\text{Var } g = E (g - \theta)^2$ exist; then $\text{Var } g = E E_t (g - \theta)^2 = E \text{Var}_t g$. When t is restricted to values between given integers, the existence condition will be satisfied. Now let $h = h(x_1 \dots x_t)$ be (for given t) a conditional unbiased estimate of $\text{Var}_t g$. Then by the above, $Eh = (E_t h) = E \text{Var}_t g = \text{Var } g$. Since the usual mean and variance estimators are conditionally unbiased, it follows that they are unbiased with random sample size.

As an illustration of the method consider a numerical example where a sample of size 70 is needed and the maximum number of interviews is fixed at 50 by funds available.

$$N = 2,000$$

$$t_1 = 50$$

$$p = 1/3$$

$$q = (1 - p) = 2/3$$

$$n = \frac{t_1}{q} = 75$$

From the 2,000 elements in the population, 75 will be selected by a random process (generally a somewhat optimistic value, for p is assumed to insure a sufficiently large n since there is variation in the rate of mailed returns and n varies inversely with $1 - p$).

These 75 elements are ordered by draw if initially selected by a random number process for each element, or randomly ordered if

selected systematically. Once the elements are randomly ordered and identified, this order must be maintained throughout the sampling process. After the 75 questionnaires are mailed and returns checked off, the first 50 nonrespondents are interviewed. Returns usable for estimation become the first $t_1 + t_2$ questionnaires in the ordering, where t_2 is consecutive mailed returns up to a nonrespondent who is not interviewed.

Consider the 75 randomly ordered elements $E_1 E_2 E_3 \dots E_{68} E_{69} E_{70} E_{71} E_{72} \dots 75$. If only 21 are returned by mail and 50 interviews are to be used, the first 50 of the serially numbered nonrespondents would be selected and the last or 50th interview might be the 69th element in the ordering. Elements 70, 71, etc., which were also returned by mail, will be used as available until the next nonrespondent element in the ordering is found. All mailed returns after one nonrespondent is missed must be discarded, so the sample may be summarized as a random sample. The mean and its variance are estimated in the usual way:

$$\bar{X} = \sum_{i=1}^t X_i / t$$

$$V(\bar{X}) = \sum_{i=1}^t (X_i - \bar{X})^2 / t (t - 1)$$

The procedures and estimators for simple random sampling may easily be extended to stratified sampling by considering each stratum as a population and properly combining the estimates for the different strata. When stratum sizes are known and the units are assigned to strata before drawing the sample, the usual formulas obtain. When stratum sizes are known but units are assigned to strata after sample information is available, post-stratification estimators should be used.

The Composition of Net Migration Among Counties in the United States, 1950-60¹

By Gladys K. Bowles and James D. Tarver

IN 1962, the Bureau of the Census published 1950 to 1960 intercensal estimates of the total net migration for all counties (4).² A cooperative project of the Economic Research Service and Oklahoma State University, supported in part by the Area Redevelopment Administration of the Department of Commerce, extends the migration estimates in the Census report to estimates by age-sex-color groups for counties, and analytical groupings of counties, and provides the basis for this paper. The authors wish to acknowledge the advice and assistance of persons at the Bureau of the Census, the National Vital Statistics Division, the University of Pennsylvania, and others at various stages in the development of the net migration estimates.

This paper presents some highlights of net migration patterns for regions and counties grouped in classes based on (a) percentage of the population urban in 1950, (b) level of median family income in 1959, and (c) Area Redevelopment Act eligibility criteria (8).

Note on interpretation of the net migration estimates.--The estimates represent the balance between the numbers of persons migrating into and out of a specified area. They show the net gain or loss of population due to internal migration, and reflect also the balance of movement of civilian and military population between the United States proper and other areas, including Puerto Rico, outlying areas of U.S. sovereignty or jurisdiction, and foreign countries. The Bureau of the Census estimates that in the decade net immigration into the United States was about 2.7 million persons (5). Thus, the national difference between the sum of estimates for all counties with net immigration and the sum of the estimates for all counties

with net outmigration is approximately this magnitude. During the 1950-60 decade, outmigration counties (or county equivalents³) had a net loss of 11.3 million persons, while immigration counties had a net gain of 13.9 million persons through migration. A county's net migration estimate is not equivalent to its total population change. The total change reflects the difference between births and deaths as well as migration during the decade.

The standard census-survival ratios residual method was utilized in developing the estimates for counties (using U.S. census-survival ratios for native whites and native nonwhites (6, 7) developed by the Bureau of the Census) with the following two major exceptions: (1) Estimates of net migration for children born during the decade were developed, and (2) survival ratios estimates of net migration for age-sex-color groups for each county were adjusted to Bureau of the Census vital statistics method estimates at the county level (4), and to vital statistics method estimates by color for States (5).

Estimates for other areas, such as States and regions, were developed by summation of appropriate county net migration estimates. Rates of net migration for age-sex-color groups, and for the totals of areas, are estimates expressed as a percentage of the 1960 survivors of the 1950 population and births during the 1950-60 decade.

Regional patterns (figs. 1 and 2).--The South and the North Central Regions had overall population losses and the Northeast and the West had overall population gains as a result of migration during 1950-60. These changes

¹ Revision of a paper presented at meeting of the Population Association of America, June 11-13, 1964, San Francisco, Calif.

² Underlined figures in parentheses refer to references cited on page 19.

³ The 130 counties and independent cities of Virginia existing in 1960 were combined into 96 subdivisions of the State to obtain comparable geographic areas throughout 1950-60; the entire State of Hawaii was treated as one area due to the absence of 1950 age-sex-color county data; and the 24 Election Districts of Alaska in 1960 were combined into three areas, corresponding to the State Economic Areas of Bogue and Beale (1).

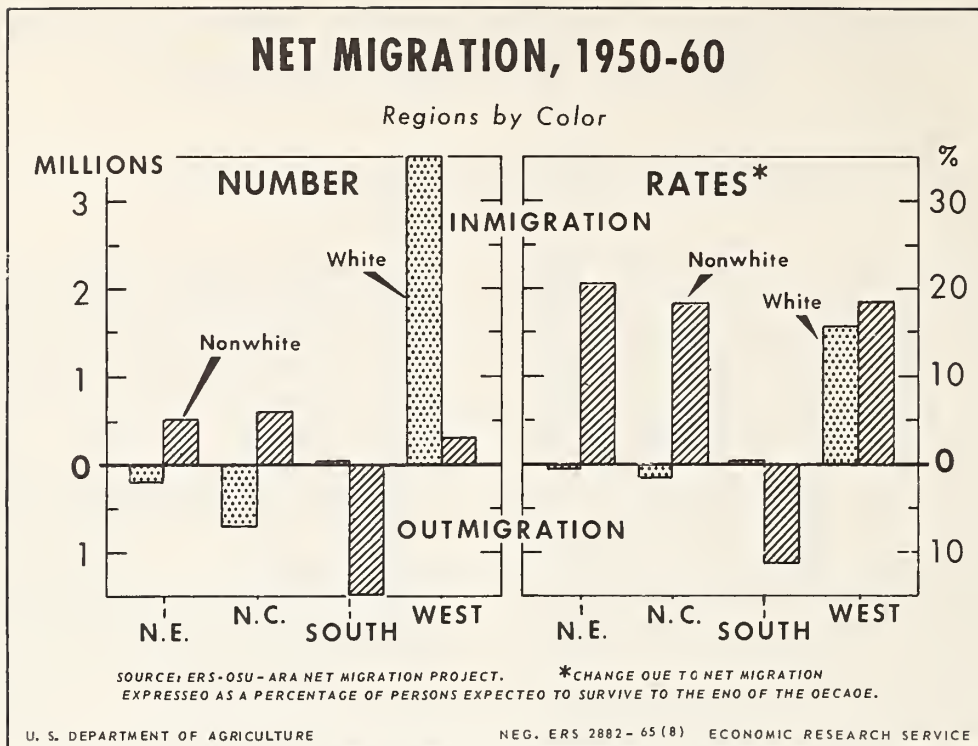


Figure 1

include different patterns of movement of whites and nonwhites among the regions (fig. 1).

The two northern regions had losses of whites and gains of nonwhites; the South had a nominal gain of whites and large loss of nonwhites; and the West gained in both color groups. The out-movement of nonwhites from the South is perhaps one of the most discussed population shifts of the decade. The South had a net loss of over 1.4 million nonwhites. The overall gain among the white population of the South was due to the inmovement of middle-aged and older adults which more than offset the outmovement of younger white people. With the exception of the Southern region, the patterns of migration of males and females (both white and nonwhite) were relatively similar. In the South, however, there was a net outmovement of white males but a net inmovement of white females.

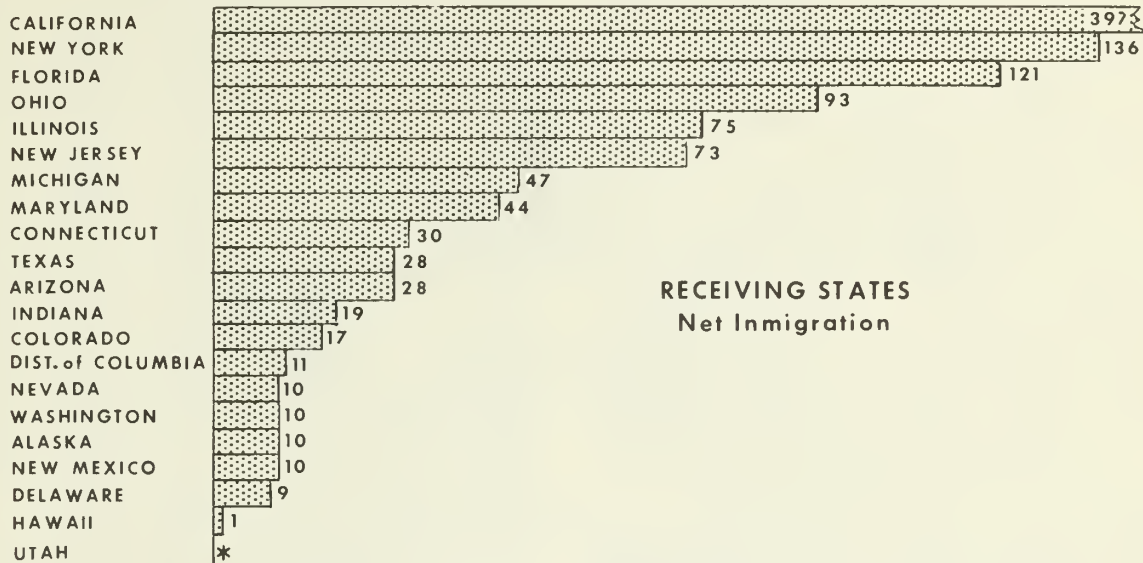
Patterns of migration, by age, vary considerably among the various regions and States. Rather than attempt to discuss these in detail, we have selected the age-cohort 25-29 in 1960 for illustration. The tremendous gains through migration of people in this age group in certain States and the offsetting losses among other States are readily observed in figure 2. (The top

half of the figure shows the receiving States and the bottom half the sending or losing States.) California was by far the largest receiving State of persons in this age-cohort, with a gain of nearly 400,000. New York and Florida each gained over 120,000 while Ohio, Illinois, and New Jersey had gains through migration of between 73,000 and 93,000. Heaviest losers were the Southern States of Mississippi, Kentucky, North Carolina, Arkansas, Alabama, and West Virginia, and Pennsylvania from among the Northeastern States, each of which lost 65,000 or more in the decade.

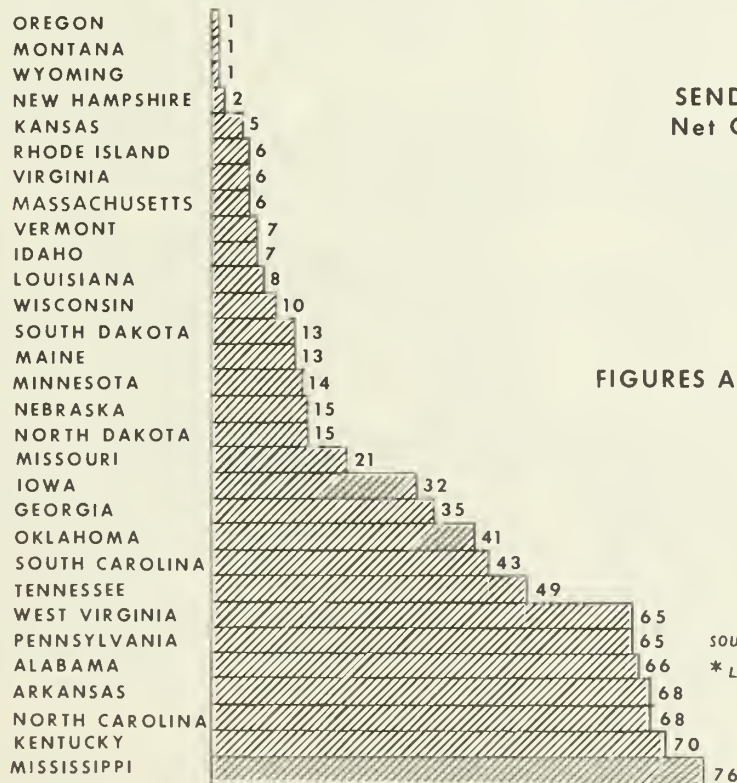
Rural-urban classification of counties (fig. 3).--The major shifts of population from rural areas to the highly urbanized areas has been the subject of much discussion since the 1960 Census data became available. The ERS-Oklahoma project sheds some additional light on the gains and losses due to migration among rural and urban counties. For this analysis counties were grouped into five classes based on the percentage of the total population residing in urban areas in 1950: (1) No urban, (2) 1-29 percent urban, (3) 30-49 percent urban, (4) 50-69 percent urban, and (5) 70 percent and over urban.

NET MIGRATION, 1950-60

Persons 25-29 Years of Age in 1960, by States



RECEIVING STATES
Net Immigration



SENDING STATES
Net Outmigration

FIGURES ARE IN THOUSANDS

SOURCE: ERS-OSU-ARA NET MIGRATION PROJECT.

* LESS THAN 1,000.

Figure 2

All three groups of counties with fewer than 50 percent of their 1950 inhabitants living in urban places had population losses through migration in nearly every sex and age group, with the rate of net migration losses generally increasing as rurality increased (fig. 3). Counties with 50-69 percent urban population in 1950 had a net gain through migration of over 1.8 million persons while those that were over 70 percent urban at the beginning of the period gained about 5.5 million persons. Nearly 2.5 million young adults 20 to 29 years of age in 1960 were included in the mass movement to highly urbanized counties.

Contrasting patterns of migration occurred among white and nonwhite migrants; the most highly urbanized counties in the United States had the highest rates of nonwhite net immigration, whereas counties with 50-69 percent of their 1950 inhabitants in urban areas had the highest rates of white net immigration.

Median family income classes of counties (fig. 4).--The relationship between the economic level of counties and net migration is strikingly illustrated by the gains or losses of counties grouped according to the county level of the median family income in 1959. For this analysis counties were grouped into seven classes: (1) Under \$2,000, (2) \$2,000-\$2,999, (3) \$3,000-\$3,999, (4) \$4,000-\$4,999, (5) \$5,000-\$5,999, (6) \$6,000-\$7,499, and (7) \$7,500 and over.

Nationwide, the movement of people during 1950 to 1960 was predominantly to areas with high income; gains in the total population through net migration occurred only in the groups of counties which had 1959 median family incomes of \$6,000 and over (fig. 4). All county groups with lower incomes had migration losses in both male and female total populations, with the rates of net outmigration increasing consistently as median family income declined. The group of counties with lowest median family income sustained a net loss of over 28 percent of the population expected to survive to 1960 while the next lowest had a net loss of about 22 percent. In contrast, the group of counties with median income of between \$5,000-\$5,999 had just a small loss, less than 1 percent. Counties with \$6,000-\$7,499 median income gained the equivalent of 11 percent of the population expected to survive to 1960. With some exceptions, most age groups

conformed to the general patterns of movement in or out of the income classes of counties.

The association between net migration and level of county income was found for both color groups, but there were some major color contrasts in the degree of association (the relationships would perhaps be more clearcut were the county classifications based on the median income of whites and nonwhites separately). Generally, the proportionate nonwhite net migration losses considerably exceeded those for whites in groups of counties with family income of less than \$5,000, and the nonwhite net migration gains surpassed those of whites in counties having median incomes of \$6,000 or more. The group of counties with \$5,000-\$5,999 median family income had overall outmigration of whites although some age groups showed net inmovement. All age cohorts (except those 75 and over in 1960) showed inmovement of nonwhites in the \$5,000-\$5,999 group.

Among the striking age differentials which may be mentioned are the rates for young adults as compared with other population groups. The groups of counties with 1959 median family income of less than \$3,000 lost half of their young adults as a result of net migration in the decade. The gains in young adults were largely concentrated in the group of counties with highest income levels.

Redevelopment areas (figs. 5 and 6).--Counties were also classified into the following three groups based on Area Redevelopment Act eligibility criteria: (1) Section 5a areas--those large labor market areas in which nontemporary unemployment was 6 percent or over, (2) Section 5b areas--predominantly rural counties of low total or farm income, and small labor market areas characterized by substantial and persistent unemployment and certain counties with Indian reservations, and (3) the noneligible counties, which have better economic conditions and are ineligible for Federal assistance under the Act. Approximately 150 counties were designated 5a and around 850 were 5b as of February 1, 1963 (8).

In the decade, there was a pronounced net movement to the noneligible areas from the designated redevelopment areas, with numerical and proportionate losses being higher in the 5b than in the 5a areas (fig. 5). The loss exceeded 2.6 million persons from the 5b counties and

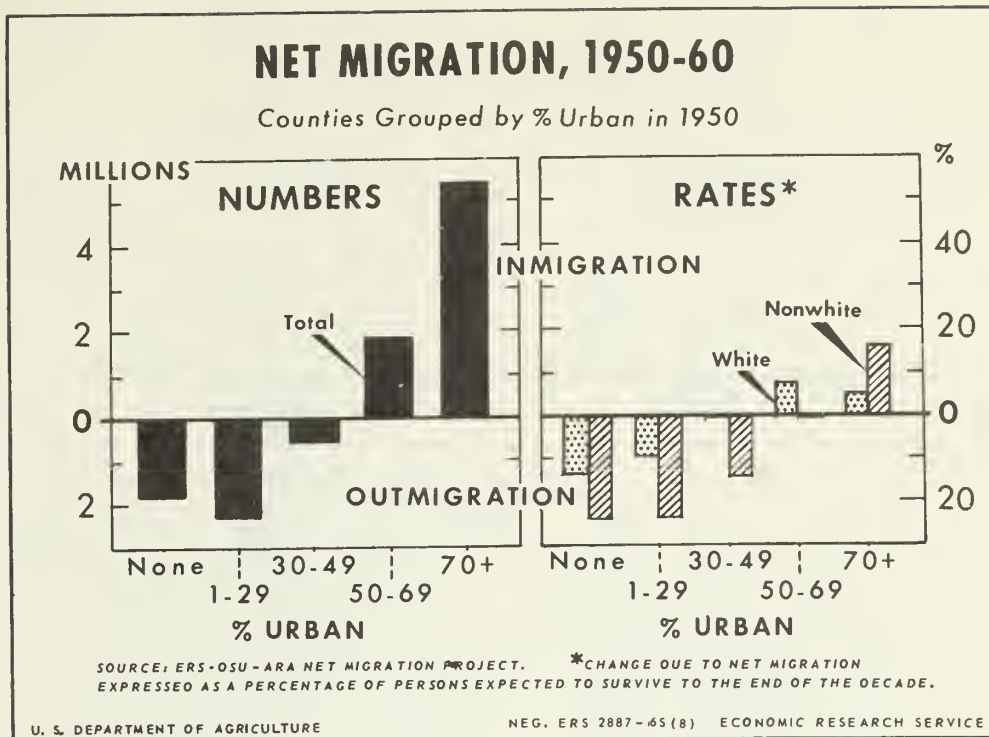


Figure 3

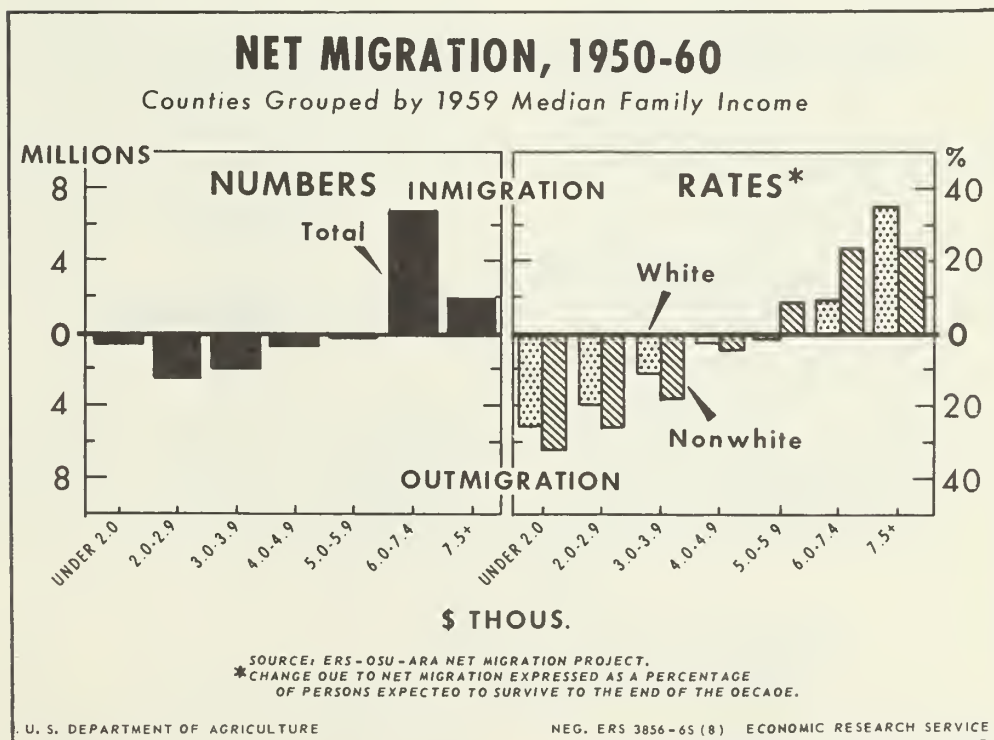


Figure 4

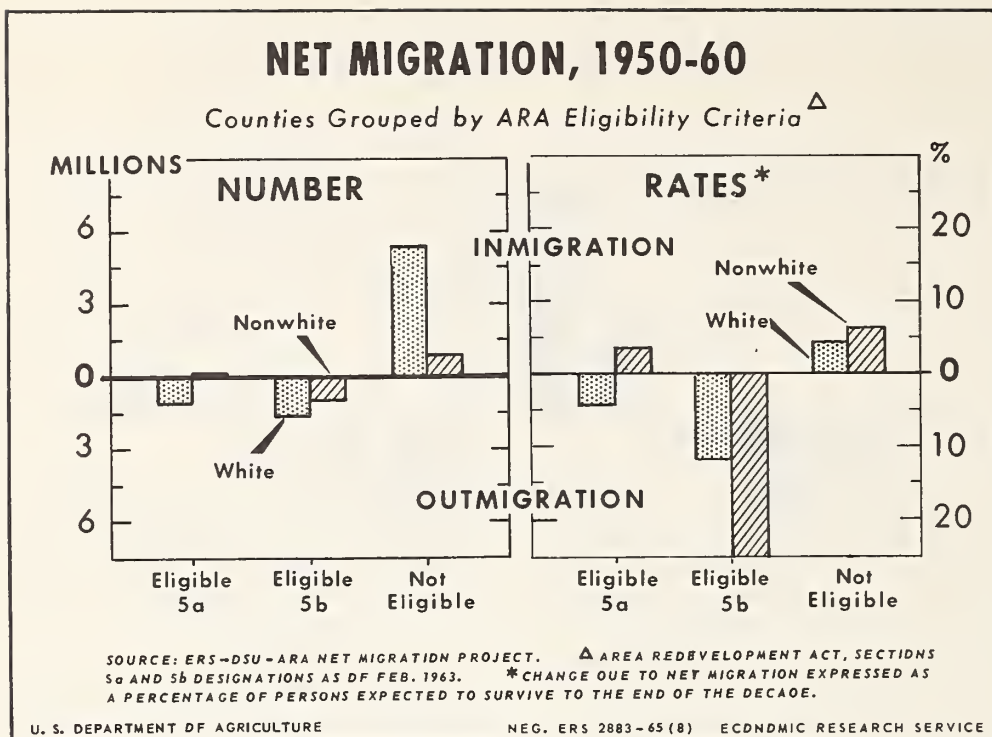


Figure 5

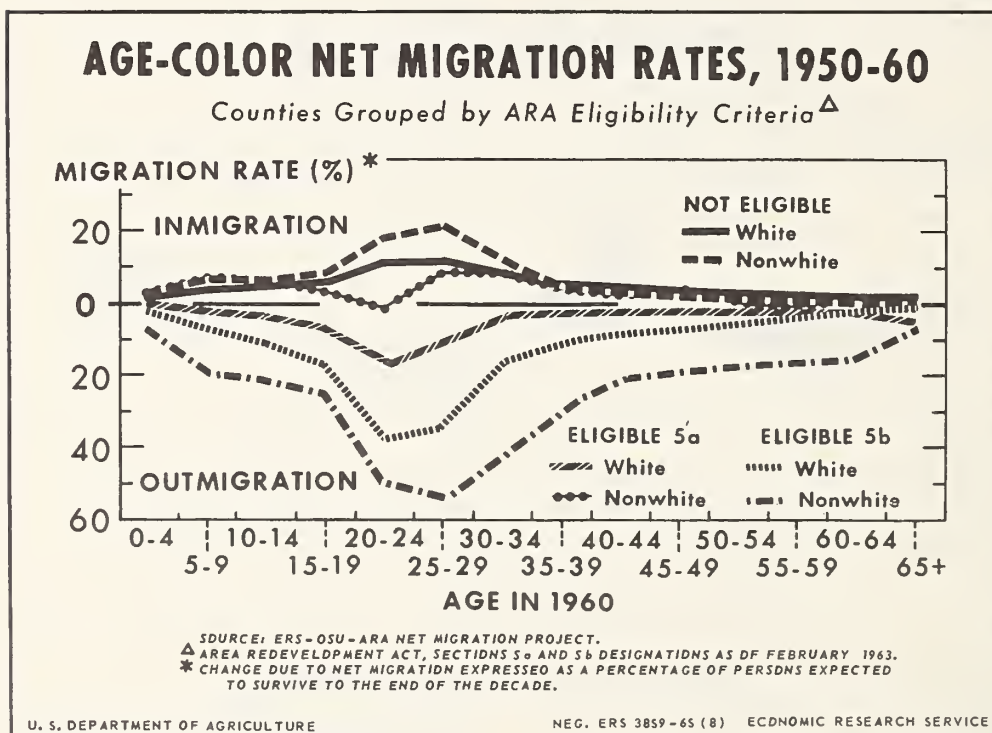


Figure 6

1.1 million from the 5a counties. These losses represent 15 percent and 4 percent, respectively, of the populations expected to survive to 1960 in these groups of counties. The loss to the redevelopment areas combined represents about one-twelfth of the 1950-60 potential human resources of these areas.

A small rate of outmigration was shown for whites from the 5a group of counties, which are more highly urban and northern than the 5b counties, and a small rate of immigration was shown for nonwhites. In contrast rates of outmigration for nonwhites exceeded those of whites from the 5b group, which are more likely to be rural and southern. The age patterns of migration of whites and nonwhites in the 5a, 5b, and noneligible groups of counties are shown in figure 6. The peaks, both in and out, at the young adult ages and the gradual decline in the middle and older ages, which are customarily observed in migration rate figures, are readily observed in these data.

Concluding remarks.--These are just a few of the highlights of the data produced in the ERS-OSU-ARA net migration project. Detailed age-sex-color estimates for counties, States, Economic Areas, and Metropolitan Areas appear in Population-Migration Report, Volume I (ERS, USDA, OSU, ARA, cooperating) (2). Data for analytical groupings of counties appear in Volume II of this series (3). A third volume is planned which will include an analysis of the net migration statistics and a full methodological statement.

Literature Cited

(1) Bogue, Donald J., and Calvin L. Beale. Economic areas of the United States: A comprehensive statistical and descriptive analysis of socio-economic character-

istics. The Free Press of Glencoe, Inc., New York, 1348 pp., 1961.

- (2) Bowles, Gladys K., and James D. Tarver. Net migration of the population, 1950-60, by age, sex, and color: States, counties, economic areas, and metropolitan areas. Population-Migration Rpt., Vol. I, Parts 1-6. Econ. Res. Serv., U.S. Dept. Agr., 1965. (Res. Found., Okla. State Univ., and Area Redevelpmt. Admin., U.S. Dept. Commerce, cooperating.)
- (3) Bowles, Gladys K., and James D. Tarver. Net migration of the population, 1950-60, by age, sex, and color: Analytical groupings of counties. Population-Migration Rpt., Vol. II. Econ. Res. Serv., U.S. Dept. Agr., 1965. (Res. Found., Okla. State Univ., and Area Redevelpmt. Admin., U.S. Dept. Commerce, cooperating.)
- (4) U.S. Bureau of the Census. Components of population change, 1950 to 1960, for counties, standard metropolitan statistical areas, State economic areas, and economic subregions. U.S. Dept. Commerce, Series P-23, No. 7, 89 pp., 1962.
- (5) U.S. Bureau of the Census. Estimates of the components of population change by color, for States: 1950 to 1960. U.S. Dept. Commerce, Series P-25, No. 247, 7pp., 1962.
- (6) U.S. Bureau of the Census. National census survival rates, by color and sex, for 1950 to 1960. U.S. Dept. Commerce, Series P-23, No. 15, 11 pp., 1965.
- (7) U.S. Bureau of the Census. Censal survival ratios for the native population of the United States, by sex and color, for the period from 1950 to 1960. U.S. Dept. Commerce, 1 p., 1964.
- (8) U.S. Department of Commerce. Summary list of redevelopment areas, February 1, 1963. Area Redevelpmt. Admin., Area Designation Status Rpt. 7, 62 pp., 1963.

Book Reviews

The City Man's Guide to the Farm Problem

By Willard W. Cochrane, University of Minnesota Press, Minneapolis, 242 pages, 1965, \$4.95.

WILLARD COCHRANE has produced an excellent, thoughtful, realistic book on farm policy. It is an example of political economy at its best; that is, it combines a penetrating economic analysis with a practical consideration of the political facts of life in order to suggest workable solutions to farm problems. Moreover, the book is clear and well-written. It builds upon its author's exceptionally wide and varied experience as a teacher, a researcher, an administrator, and a political adviser.

The first half of the book presents well-chosen facts, statistics, and analyses intended to inform the city man about modern farming. It documents the high productivity of commercial farms--leading to chronic surpluses and to high investments in farming. It analyzes the extent and causes of rural poverty. It discusses the possibilities and dangers of "the wild, exciting future." The analysis is brief but sound and incisive.

Before presenting his ideas about farm policies and programs, Cochrane makes some important observations about the current political situation. He notes (p. 156) that "farmers and their organizations are hopelessly divided," and that "the number of farmers in the total population is now very small, and their political representation in the Congress is vanishing." He says that there is great pressure to reduce the costs of the farm programs. He says (p. 157) that "the power to break the stalemate and redirect farm policy will in the future be in the hands of an aggregation of nonfarm groups."

These are some of the political facts of life that suggested a book on farm policy directed to the city man. Its aim is to help the city man vote more intelligently on matters of farm policy. Moreover, these same political facts must be considered by farmers, farm leaders, administrators, and legislators.

Rather than presenting a set of specific recommendations, Professor Cochrane suggests a number of ideas intended to stimulate thought. One group of ideas centers around the problems of commercial agriculture--the other around the problems of rural poverty.

Unfortunately, most of the early discussion of the book seems to have centered around one of the suggestions for commercial agriculture. That suggestion is that price-support levels be lowered by about 2 percent a year over a period of 7 years. Some seem to think that this is a strange sort of flip-flop. They say that a few years ago Cochrane was the champion of supply management--and that now he is recommending a gradual return to the classical free market.

But clearly the author still would favor about the present level of price supports if they could be made effective through real control over supply. He would accept a gradual lowering of price supports only as a realistic second choice, in case effective supply control continues to be politically impossible. His actual suggestion for a price policy for commercial farms is in terms of alternatives. Thus, he says (p. 165):

"First, hold the structure of farm prices at the 1961-64 level by maintaining the general level of price support at the 1961-64 level, if farmers will accept effective supply controls.

"Second, if farmers will not accept effective supply controls, lower the level of support gradually, say, 2 percent per year, for 7 straight years, or by a total of 15 percent."

The second alternative is suggested only because (p. 167) "the acceptance of effective controls by commercial farmers is indeed doubtful." Is this a flip-flop, or is it recognition of a changed political climate? Perhaps it might be called a necessary degree of flexibility. The alternative would have been a stubborn disregard of reality. Consistency is often overrated. The political economist should be able to learn from experience, and to modify his position if necessary.

This short review cannot comment on all of Cochrane's many interesting suggestions about agricultural policy. Only two of them will be mentioned briefly.

His first suggestion under "the commercial problem" (p. 161) is that "a necessary condition for solving the commercial farm problem is a high level of national economic activity." This is correct, and important. Farmers have a big stake in general economic programs to prevent business depressions and to encourage steady growth and prosperity. This would have been a good place to remind the city man that he still has a stake in farm prosperity. Even though the farm population is shrinking, even though farm income is a dwindling proportion of national income, many industries are still affected by changes in farm income. Unless the city man understands this, he may not vote for an effective farm program, especially if it is expensive.

Cochrane says that in recent years our efforts to deal with rural poverty have been too little and too late. He recognizes that the Economic Opportunity Act of 1964 can change this. As he says (p. 207), "This was obviously a high-priority effort: it was under the immediate direction of the President, and it has a budget large enough to mount a whole set of large-scale anti-poverty programs."

Yet, he says (p. 209), "The special programs of the Economic Opportunity Act to combat poverty in rural areas are both hopeful and disquieting. It is hopeful to see rural poverty, so long ignored, singled out for special attention. It is also hopeful that loans may be made to low-income, low-production farmers to finance nonagricultural enterprises. But it is disquieting to see that the principal mechanism for combating poverty in rural areas remains, under this act, the making of small loans to low-production farmers to enable them to ac-

quire a little more land or pay for equipment, livestock, or other production supplies.

"The principal means of attack on rural poverty is once again small loans (up to \$2,500 per farmer) to tie the farmer closer to the land or to tide him over for another year or two, when what is needed above all in rural areas are mechanisms to assist low-production, low-income farmers to shift out of farming and into more productive nonfarm enterprises."

This is an exciting, thought-provoking book.

Frederick V. Waugh

Individual Freedom and the Economic Organization of Agriculture

By Harold F. Breimyer. University of Illinois Press, Urbana. 314 pages. 1965. \$6.50.

THIS BOOK should be required reading for anyone who seeks to understand the dilemma facing U.S. agriculture today--and the place of the individual in it. More, there is valuable insight here as to the concept of individual freedom in modern industrial-urban society.

The author disavows any intention of prescribing answers to the problems he describes. But his work is not without conclusions and judgments. They relate, as he says, to "the inevitability of progressive transformation of agriculture in this country under pressure of the industrial world which surrounds it." His plea is that issues of individual freedom should enter into whatever steps are taken to influence the form that transformation will take.

Part I of the book is devoted to setting forth "The Problem in Its Setting." In simplest terms, it is the question of whether traditional independent-unit agriculture has qualities that merit its being retained, in whole or in part. A good case is made for the affirmative, both in terms of historical perspective and in terms of meaning for the future of individual enterprise.

In a chapter entitled "A Note on the Meaning of Freedom," the author examines the philosophical concept as it relates to the values of

society. He cautions that freedom comes not at a profit but at a cost. And he warns against "tendencies to bend all else before national goals of maximum gross production and consumption"--a warning that since the writing of this book, but before its publication, was echoed by John Kenneth Galbraith.

Further, Breimyer warns that "a two-step sequence of formulating neat, concise national goals in abstract terms and then naming rigorous methods to attain them is the hallmark not of democratic society but of an authoritarian one."

With broad brush, the author sets the attributes of modern agriculture against those of urban industry. How much, and in what way, he asks, should agriculture model itself after the urban-industrial world which surrounds and threatens to envelop it? To what extent should it try to preserve its separate identity? In what manner should it change its form while retaining its traditional values?

Part II of this book is an inventory of economic institutions of present-day agriculture. The implicit message is that our agriculture, which often proclaims its simplicity, in fact depends on an intricate network of horizontal and vertical coordination. The magnitude and multiplicity of services that are performed by and for agriculture--by farmers cooperatively and for them by State and Federal governments--are set forth.

Discussed at length are two growing trends toward a new kind of agriculture--the trend toward superfarms (the author sees this as no chimera) and the increase in various kinds of vertical integration. The latter, he notes, is "not confined to a few products or to negligible magnitude."

Part III contains the real meat of this book: case studies of vertical integration in the broiler industry, marketing agreements and orders, and land rental and retirement programs. The attitudes expressed by various individuals and groups in agriculture are reported--and the role of farmer cooperatives is discussed.

Finally, the author discusses seven possible courses of action from which programs to influence the shape of agriculture could be drawn. They are held to be "more illustrative than prescriptive," but a strong case is made for group action. This does not constitute an en-

dorsement of cooperatives, which come in for some sharp criticism as "sometimes far distant from the idealized role they were once expected to fill."

It is almost impossible to give the real flavor of this book in a short review--it ranges far and probes deeply. The subject is one of importance not just for agriculture but for a free people.

The author himself sums it up best when he says that his "inquiry into the subject of individual freedom and economic organization of agriculture in its manifold complexity is, in its broadest sense, an investigation of how the dignity and worth of the individual can be incorporated into the process by which policy for agriculture is made for its industrial age."

Eleanor Ferris

The Logic of Collective Action

By Mancur Olson, Jr. Harvard University Press, Cambridge, Mass. 176 pages, 1965. \$4.50.

MANCUR OLSON, Jr., has developed an interesting theory of group and organization activity. The central point of his theory is that the rational self interest of individuals, contrary to widely accepted belief, cannot necessarily be identified with their common group interests. While Olson uses economic tools in his analysis, he recognizes the interdisciplinary application of his theory. He sees wide application, for instance, in political science and sociology as well as economics.

Olson concludes that small groups generally are more effective than large ones. In these groups individual contributions are more readily identifiable. But even in small groups individuals who make minor contributions are subsidized by those who are most directly concerned and who make the larger contributions.

As groups become larger, the "public good" they provide is widely diffused and benefits everyone in the group irrespective of his contribution.

Olson develops in some detail group behavior as it relates to labor unions, the theory of the State, and various pressure groups.

He then raises the question: If small groups are more effective, how is it that some large groups succeed in maintaining a powerful lobbying position? This is because their lobbying position largely is a byproduct of their other efforts.

A look at labor lobbies leads Olson to the conclusion that it was primarily after the passage of the Wagner Act that they were able to achieve a really important role in politics. He also points out that professional groups such as the National Association of Manufacturers and the American Medical Association find that lobbying efforts, in actual practice, are a byproduct of their other activities.

Turning to agriculture, Olson uses the existing relationships of cooperatives to general farm organizations to advance his arguments. He points to the distinct control relationships with various types of cooperatives that the Illinois Agricultural Association, the State Farm Bureau organization, has developed in Illinois.

The benefits that farmers obtain from belonging to these Farm Bureau controlled cooperatives--insurance and marketing and purchasing associations--are the principal motivating factors in their joining the Farm Bureau organization. He suggests that such membership, however, contributes little to the lobbying strength of the Farm Bureau even though total memberships have increased.

Olson also refers to the program of the National Farmers Organization (NFO). He states that should it "some day succeed without using violence or other selected incentives in maintaining farm prices by getting farmers to withhold some of their output from the market, they would tend to refute the theory offered here."

He further observes that while his theory applies to all types of group activity, it would not be particularly applicable to highly motivated philanthropic lobbies. He also sees the same application to groups having low degrees of rationality. Finally he emphasizes that there are many forgotten groups who "suffer in silence" because they are not able to integrate special interest activities with a program for aggressive lobbying.

Olson's approach has interest for persons concerned with the effectiveness of various types of group activity. This reviewer, however, found his writing somewhat labored and ponderous. To use an 85-word sentence to present a reason why certain factors keep larger associations from furthering their own interests will leave many wondering what this reason really is. When he refers to the profitability of cooperatives in Illinois and comments on "the favorable tax treatment given cooperatives" his observations are superficial.

Martin A. Abrahamsen

The Forgotten Farmers: The Story of Sharecroppers in the New Deal

By David Eugene Conrad. University of Illinois Press, Urbana. 223 pages. 1965. \$5.

THE AGRICULTURAL Adjustment Act of May 12, 1933, was designed as a new means "to rescue agriculture for the millions of people who depended upon farming for a livelihood." President Roosevelt wrote that farmers had to be rescued because they were in "a hopeless plight." But those farmers who were in the most hopeless and desperate situation, the sharecroppers on cotton farms in the South, were scarcely mentioned when the legislation was drafted and debated. In the hearings and the debate on the bill, no one warned that a drastic acreage reduction program would bring the eviction and displacement of thousands of tenant farmers and sharecroppers and the firing of many hired workers. Sharecroppers were the forgotten farmers.

"The Forgotten Farmers," winner of the Agricultural History Society's book award for 1964, is concerned with the effect of the cotton program of the Agricultural Adjustment Administration on tenants and on the system of Southern tenancy, which is called "a vicious self-perpetuating system." It also describes the rise of the biracial Southern Tenant Farmers

Union with its objective of forcing the Agricultural Adjustment Administration to stop the increasing number of evictions and to require landlords to make equitable distribution of payments to tenants.

David Eugene Conrad describes in detail the development of the cotton program of the Agricultural Adjustment Administration. He has searched the archives and corresponded with a number of the officials responsible for formulating and administering the program, to learn why more concern was not shown for the welfare of tenants and sharecroppers when the program was planned and the crucial decisions made.

The issues of importance to tenants and sharecroppers centered around the equitable division of payments and the rights of tenants and sharecroppers to remain on the land. Because of qualifying phrases and vagueness in the 1934 contract, much depended on program administration. A complicating factor was the decision that landlords would receive and disburse payments to "non-managing share tenants" who would not be entitled to sign contracts with the Government.

Anger and unrest among sharecroppers working on a large plantation in northeastern Arkansas over eviction of tenants and division of payments, together with the concern for their plight shown by an active group of socialists, brought about the organization of the Southern Tenant Farmers Union. The Southern Tenant Farmers Union sent a barrage of letters and telegrams to AAA officials citing violations and warning of wholesale evictions. When letters and telegrams did not get results, a delegation was sent to Washington during January 1935 to talk to the Secretary of Agriculture and AAA officials.

In the meantime, an unsuccessful effort was made within the Agricultural Adjustment Administration to change the interpretation of the landlord-tenant regulations. Although 1935 was too late in the author's view to reform the tenant system of the South, he feels that it might have been accomplished when the program was formulated. In a concluding chapter he makes the following statement:

"The cotton experts in AAA understood Southern tenancy well, and rather than attempting to reform the system--a task

for which they had little enthusiasm and no authority--they accepted it and adapted their plans to it. They made the landlords the administrators of the cotton program to their tenants, and they saw to it that the landlords received a far greater share of the government benefits than did the tenants. To have done otherwise would have seriously disrupted Southern tenancy structure. It is a tragedy that the system was not disrupted at precisely this time, for the opportunity was golden. Never in its long and cruel history had tenancy been more vulnerable. If, for instance, AAA had made equitable payments for acreage reduction directly to tenants, the money would have given the tenants greater independence and bargaining power with the landlords and might have begun the destruction of the tenancy system. The leaders of AAA argued that they had to favor the landlords or too few would agree to reduce acreage and there would be no program, but one suspects that in 1933 and 1934 the landlords were desperate enough to accept government aid no matter what strings were attached."

The author's discussion of sharecroppers' problems ends in 1935. Thus there is no discussion of the relationship between the programs of the Resettlement Administration and the plight of the tenants displaced as a result of AAA programs. He notes that Calvin Hoover, in a study made for the Department at the suggestion of John D. Black, suggested as one possibility that evicted tenants be placed on small subsistence farms. Hoover pointed out that a considerable amount of former cotton and tobacco land could have been purchased with the funds used for rental payments.

The problems facing the Department in its attempt to restore the purchasing power of the agricultural sector of the economy during the 1930's were exceedingly complex. Although the book is focused on the problems of sharecroppers, the dilemmas faced by administrators intent on rescuing the cotton economy without causing hardships for tenants are recognized by the author.

The book is well documented and well written. It should be of interest to program administrators as well as historians interested in

agricultural policy. The description of sharecroppers' problems in dealing with Government and of the Southern Tenant Farmers Union may prove helpful to those who are trying to resolve the issue of how far the poor should be involved in the planning and administration of poverty programs.

Gladys L. Baker

Measuring Benefits of Government Investment

Edited by Robert Dorfman. The Brookings Institution, Washington, D.C. 429 pages. 1965. \$2.50.

IN NOVEMBER 1963, a conference was held at the Brookings Institution to present and assess new techniques for measuring the benefits and costs of public investments. This book is primarily an edited set of the conference proceedings. Any reader expecting to find a sure-fire set of formulas and procedures that will give objective, universally acceptable answers for Government investment decisions will be disappointed in this book. But a reader will be far from disappointed if he is looking for a rather thorough evaluation and critique of some new benefit-cost techniques, plus guidelines for recognizing those cases where benefit-cost analysis is worth the effort.

Seven empirical papers were presented on topics ranging from urban highway investments to public health expenditures. Discussants were selected primarily from the Bureau of the Budget and other Government agencies, so as to stimulate lively discussion between advocates and critics of the art and science of benefit-cost analysis. Robert Dorfman of Harvard University acted as chairman of the conference, and he edited the volume. In his introductory chapter, he discusses the concepts underlying benefit-cost analysis, and then summarizes and evaluates the conference in a succinct, accurate, and lucid manner.

This book could be likened to a benefit-cost analysis of benefit-cost analyses. Some of the

discussants contended that the benefits to decision-makers are of dubious validity, and do not justify the efforts of the elaborate and painstaking benefit-cost analysis, in view of the inevitable omissions and uncertainties involved. For example, one author was severely criticized for, in effect, "padding" the monetary benefits of civil aviation expenditures. In his apparent zeal for a favorable benefit-cost ratio, the author attempted to place a monetary value on the time airplane passengers spend waiting for a delayed takeoff. Says the discussant, "...whether a businessman reads reports, drinks martinis, talks to the stewardess, looks at Sports Illustrated, or prays" for a safe journey is well beyond the conjecture of the economist or the measurement techniques of the market surveyor.

Similar criticisms are hurled at the other authors, for such errors and omissions as (1) failing to recognize groups that are seriously harmed or benefited by the public expenditures being analyzed, (2) attempting to establish monetary values for rather nebulous benefits, (3) ignoring the redistribution effects, and (4) examining in exhaustive detail a few unimportant variables that are far outweighed by crucial, yet unmeasurable, variables.

Despite the serious faults pointed out by the discussants, the authors are to be commended for their contributions to the general understanding of the difficulty of evaluating the overall benefits and costs of a specified type of Government expenditure. Pointing out the existence and the importance of discontinuities is one such contribution of this book. Discontinuities destroy or seriously hamper the validity of the optimizing calculus. Another contribution is the thorough manner in which most of the authors (with the critical aid of the discussants) highlighted certain groups that would be affected by the expenditures being evaluated. The extreme diversity of techniques employed in the various papers shows that considerable imagination is required in applying benefit-cost analysis to a specific kind of expenditure.

An uninitiated reader who patiently works through the "revolving door" of papers and critiques presented in this book will undoubtedly learn something useful about the promising techniques, the pitfalls, and the shortcomings of benefit-cost analysis. Sifting the constructive

criticism out of the otherwise caustic remarks of the discussants, a few operating procedures can be formulated:

(1) Wherever possible, give the decision-maker a choice between two or more alternative means of attaining the specified objectives.

(2) In evaluating each of these means, clearly specify all the particular effects, both beneficial and detrimental, that the decision-maker should look at.

(3) Indicate which of these effects are measurable and which are not, and list the pecuniary effects as a subset of the measurables. (For example, the number of high school dropouts prevented is a measurable variable; their projected income is a pecuniary measurable variable).

(4) Attempt to measure the effects that are measurable. The units of measurement may include dollars, number of accidental deaths, man-days of labor, or other such items, depending on the situation being examined.

(5) Present the results in a clear and simple manner, telling the decision-maker what alternative investments you analyzed and what things he ought to consider in evaluating each of them. Then give him a rough measurement of those variables that can be measured.

At this point, the scientific role stops and the political role takes over. In making up his mind, the public decision-maker will have to estimate the unmeasurables, and subjectively assess the relative importance of these as well as the measurables. He also faces the delicate task of balancing the gains to some groups against the losses of others.

Despite the obviously subjective and political nature of the public decision-making process, the decision-maker will, in many cases, feel obligated to take account of a carefully and objectively executed benefit-cost analysis. Approached from this point of view, the analyst will not be frustrated (a) if he fails to come up with completely determinate evaluations, or (b) if the decision-maker chooses against an investment alternative that ranks high in terms of monetary benefit-cost ratios or other measurable criteria. In this context, benefit-cost analysis can be both useful to the decision-maker and rewarding to the analyst. A careful study of this book will be invaluable not only to

analysts, but also to decision-makers who have occasion to consider the results of a benefit-cost analysis.

J. Patrick Madden

The Lifeline of America: Development of the Food Industry

By Edward C. Hampe, Jr., and Merle Wittenburg.
McGraw-Hill Book Co., New York, 1964. 390 pages. \$6.95.

THE AUTHORS begin by proclaiming the superiority of "free enterprise," and go on to insist that their history illustrates the excellence of this system. They define "free enterprise" broadly, and in so doing describe a system which never operated in all areas of American economic life, and which has not characterized the whole economy for nearly a century. Occasionally, a chapter ends with praise of free enterprise, even when the narrative clearly shows the historical development of a pluralistic economy instead.

Otherwise, "Lifeline of America" is a useful book, although the orthodox approach contributes little to scholarship or to research methodology. The history aims to assemble the story of the food industry in one book. It covers production, marketing, processing, transporting, wholesaling, and retailing. It recounts many advances in sciences and technology. The authors take the story back to neolithic times, but they isolate the important events in chapters such as "The Fourth Agricultural Revolution," "Canning: Breakthrough to Mass Distribution," and "Waterways and Railways."

A true synthesis might have resulted in an examination and elucidation of relationships, but the book falls short here, perhaps because of organization. Because the authors approach the material topically, each chapter comes out as a digest of some of the material on the various subjects. Some of the faulty economic interpretation may have stemmed from this topical approach.

One argument for a chronological treatment is that, after all, events actually happen that way. We did not first farm, then preserve food, then build the transportation system, but rather, all of these took place at the same time. Furthermore, the topical arrangement forces the authors to repeat topics since they cannot avoid interconnected events. In addition, with each topic they have to repeat the time sequence from antiquity to the present. Within the limitations of their organization, however, the authors cover the material thoroughly enough, especially for the period since 1900.

On the whole, the authors do best with their account of food preservation and distribution; the chapters on the supermarket, indeed, verge on brilliance. Possibly the excellence stems from the fact that the major developments in these areas took place in the 20th century. Generally, the authors seem a bit lost when dealing with remote times. They do not, for example, seem to know that Americans were the best fed people in the world, not just since 1900, but as early as the 18th century.

The authors continually ignore or submerge every conflict in American history. For example, one would not gather from this book that the Grangers ever bore the railroads any ill will, or that farmers ever had any reason for such hostility. Where the authors mention conflict, as between chainstores and other retailers, they treat the affair as merely some sort of misunderstanding. In this account almost everyone behaves well; no one is evil, or greedy, or dishonest. By taking this stand the book fails to tell the whole story. Still, it does offer an assemblage of information which cannot be found elsewhere in one place. It can also serve as a reference work for background on the economic events connected with the food industry.

John T. Schlebecker

By Bruce M. Russett and Hayward R. Alker, Jr., Karl W. Deutsch, and Harold D. Lasswell. Yale University Press, New Haven, 373 pages, 1964, \$10.

THIS VOLUME comes as a badly needed statistical sourcebook on social and political conditions in the world's many nations. It contains country estimates on 75 politically significant indicators grouped under the broad general headings of (1) human resources, (2) government and politics, (3) communications, (4) wealth, (5) health, (6) education, (7) family and social relations, (8) distribution of wealth and income, and (9) religion. In addition to individual country measures, it provides for all reporting countries mean and median values, modal decile, range in values, standard deviation, and percentage of world population represented by the reporting countries.

Part B of the book consists of an analysis of trends and patterns applicable to the items on which the authors have reported. It is offered under six subheadings, beginning with a first-step analysis presenting correlation coefficients for each of the series with every other one of the items. It continues with an examination of (a) the concept of stages of development; (b) changing relationships between variables; (c) multifactor explanations of social change; and (d) regionalism versus universalism in comparing nations. It concludes with projections to 1975.

Russett and his associates have compiled the statistics in this book from literally hundreds of reference sources, published by many different agencies, national and international, public and private, located in many different parts of the world. In fact, they have drawn data on some items from as many different sources as they have countries reported.

The authors have carefully listed their original data sources. The listing of these references alone is a valuable contribution, particularly to beginning students and to persons in a given social science discipline searching for data in others.

Overall, this book reflects care in the choice of items considered and a high level of competence in analysis as well as painstaking searches through many reference sources.

The research underlying this publication has been conducted by the Yale Political Data Program established in 1962 by a grant from the National Science Foundation. Additional support for this project has been provided by the United Nations Educational, Scientific, and Cultural Organization.

Reflecting the spirit of cooperation that has made this important volume possible, data for this book have been reproduced on punch cards, and decks of these cards and code books can be obtained for use by others.

William E. Hendrix

African Primary Products and International Trade

Edited by I. G. Stewart and H. W. Ord, University Press, Edinburgh, 218 pages, 1965, \$7.50.

THIS IS a collection of papers presented at an International Seminar held at the University of Edinburgh during September 1964 under the sponsorship of The Center of African Studies and the Department of Political Economy.

The 14 papers grew out of studies that had been undertaken in Nigeria and Ghana, concerned with the estimation of demand for and supply of farm products, by the University's Department of Political Economy. This research was supported by the U.S. Department of Agriculture.

The papers cover a variety of topics and bring out more problems than the title of the book implies. Similar problems confront developing countries in other areas of the world. What may appear to be the solution of the problems in Africa is not necessarily a panacea for de-

veloping regions of Asia or Latin America. This fact has been acknowledged. However, it is stated that a world economic system could be established to help the developing countries in each region to achieve their own objectives.

An overall classification of the 14 papers might have the following headings: (1) International trade and development, (2) commodity problems, and (3) problems confronting the expansion of agricultural productivity.

Of immediate interest to African countries is trade in primary products and the related problem of economic development. That is to say, export earnings are not sufficient to realize the development aspirations of the countries, and instability of these earnings by violent price fluctuations aggravates the problem. It is believed that commodity markets might be organized to support dynamic economic development. Yet it is pointed out elsewhere that the International Coffee Agreement is detrimental to Kenya. Structural change both in developing countries and in the international trading policies of the world is recommended to stimulate economic growth.

The existent commodity policies might be changed to stimulate the productive capacity of developing countries. The changes should include new production and marketing methods for foodstuffs consumed domestically as well as for export crops. Diversification has been suggested to increase revenues and assure stability, yet it is difficult to generalize on the advantages of diversification versus specialization. Some countries will benefit more than others from such an arrangement. Increasing agricultural productivity, processing of these products, finding new markets, intracontinental trade, tariff protection, and international pooling of foreign exchange reserves are some factors which might alleviate the situation.

The varied topics discussed in this book point out that stabilization of internal trade for Africa's primary products will not necessarily benefit the whole of Africa on equal terms. To achieve a dynamic economic growth, additional research is needed as a guide to regional development on a smaller scale, which may then be coordinated in the whole of Africa and other developing countries.

Arthur G. Kevorkian

Selected Recent Research Publications in Agricultural Economics Issued by the U.S. Department of Agriculture and Cooperatively by the State Universities and Colleges¹

Brown, Bernard G., and Harvey Shapiro. A CASE STUDY OF URBAN EXPANSION AND ANNEXATION, HARRIS COUNTY, TEXAS. U.S. Dept. Agr., Agr. Econ. Rpt. 86, 50 pp., September 1965.

Texas permits certain incorporated cities to annex the unincorporated areas beyond their boundaries without the consent of the inhabitants of the unincorporated areas. The city of Houston, located in one of the wealthiest agricultural counties in Texas, expanded by annexation from 73 square miles in 1940 to 350 square miles in 1960. The annexations appear to have provided additional revenues for the city of Houston without affecting the revenues of Harris County.

Clement, Wendell E., Peter L. Henderson, and Cleveland P. Eley. THE EFFECT OF DIFFERENT LEVELS OF PROMOTIONAL EXPENDITURES ON SALES OF FLUID MILK. U.S. Dept. Agr., Econ. Res. Serv., ERS-259, 21 pp., October 1965.

In a controlled experiment conducted over a 2-year period, significant relationships were found between promotional expenditures and sales of fluid milk. Three levels of promotional expenditure were tested. The medium level of promotion was optimal, producing a net return of \$161,050 to farmers on an investment of \$237,530 for promotion.

Gallimore, William W. CONTRACTING AND OTHER INTEGRATING ARRANGEMENTS IN THE TURKEY INDUSTRY. U.S. Dept. Agr., Mktg. Res. Rpt. 734, 43 pp., November 1965.

The U.S. turkey industry is trending toward greater use of contracts and other means of integrating the various stages of production and marketing. In a survey of 53 firms in leading turkey-producing areas, examples of integrating of all stages of production and marketing were found. Integration was achieved through ownership, or through contracts, agreements, or other arrangements.

Jones, Lawrence A., and Edward I. Reinsel. SOCIAL SECURITY AMENDMENTS OF 1965: IMPORTANCE TO FARM AND RURAL PEOPLE. U.S. Dept. Agr., Econ. Res. Serv., ERS-257, 18 pp., October 1965.

The social security amendments signed into law by President Johnson on July 30, 1965, affect nearly all people in the United States and will result in increased

annual expenditures of about \$6.5 billion. The publication describes several of the new features, particularly "Medicare," a program to finance hospital and other health services for persons 65 years old and over.

Kampe, Ronald E. THE AGRICULTURAL ECONOMY OF LEBANON. U.S. Dept. Agr., Econ. Res. Serv., ERS-Foreign 138, 27 pp., 1965.

Agricultural activities are limited by Lebanon's predominantly mountainous topography. Only about one-fourth of the land is used for crop production. The principal dryland crops are grains and pulses. Fruits and vegetables are grown with supplemental irrigation. Lebanon is a net importer of agricultural commodities, especially grains and live animals for meat. Expansion of farm output is expected over the next few years, but import requirements will also increase to meet demand of an increasing population.

Lasley, Floyd A. GEOGRAPHIC STRUCTURE OF MILK PRICES, 1964-65. U.S. Dept. Agr., Econ. Res. Serv., ERS-258, 7 pp., September 1965.

Dealers' buying prices for fluid milk tend to increase with distance from the major supply areas. Improved technology in transportation lowers these geographical price differences, while higher factor prices paid by transportation firms increase them. These two have been offsetting each other for several years.

Perkinson, Leon B. CROP-HAIL INSURANCE IN THE UNITED STATES. U.S. Dept. Agr., Econ. Res. Serv., ERS-249, 18 pp., September 1965.

In 1963, farmers purchased more than \$2.8 billion of protection against hail. About 75 percent of the total coverage was concentrated in three regions--the Corn Belt, Northern Plains, and Appalachian regions. Crop-hail insurance is offered by mutual associations or co-operatives which are owned by its policyholders, stock fire and marine insurance companies, State hail insurance departments, and the Federal Crop Insurance Corporation.

Severin, R. Keith. BULGARIA'S AGRICULTURAL ECONOMY IN BRIEF. U.S. Dept. Agr., Econ. Res. Serv., ERS-Foreign 136, 11 pp., September 1965.

While one-third to one-half of Bulgaria's output in the past two decades has been attributable to agriculture, that sector of the economy has received only 18 to 25

¹ State publications may be obtained from the issuing agencies of the respective States.

percent of total investments. Improvement is contemplated in the current 20-year plan (1961-80), which stipulates that agriculture will receive about one-fourth of all investment during the 1960's. About half of Bulgaria's labor force is engaged in agriculture, and almost half of Bulgaria's exports originate in agriculture.

Treacle, H. Charles. THE AGRICULTURAL ECONOMY OF IRAQ. U.S. Dept. Agr., Econ. Res. Serv., ERS-Foreign 125, 74 pp., August 1965.

Agriculture contributes about 20 percent to the national product of Iraq. About three-fifths of the country's agricultural output by value comes from crops and two-fifths from livestock products. Iraq is an exporter of livestock products, fruit, cotton, and in some years barley, but an importer of several other agricultural products, especially sugar, tea, fats and oils, and, in recent years, grain.

Volin, Lazar, and Harry Walters. SOVIET GRAIN IMPORTS. U.S. Dept. Agr., Econ. Res. Serv., ERS-Foreign 135, 17 pp., September 1965.

The Soviet Union has become a large importer of wheat since the disastrous harvest of 1963. Prior to that it had been a major wheat exporter principally to communist countries. While exports to these countries have continued they have been greatly reduced. The future outlook will depend upon the ability of the Soviet government to raise the very low yields of wheat and rye. Under average weather conditions, grain imports by the Soviet Union will probably decline by 1970.

Vosloh, Carl J., Jr. PROCESSING FEED INGREDIENTS: COSTS, LABOR, AND CAPITAL REQUIREMENTS. U.S. Dept. Agr., Mktg. Res. Rpt. 731, 31 pp., November 1965.

Approximately 60 percent of the output of a feed plant is routed through the processing center for grinding, crimping, or cracking before mixing. Two model processing operations were used in this study to show labor requirements and operating costs. The smaller model has equipment costing about \$29,000 installed, and uses about 0.06 production man-hour per ton. Equipment for the larger model costs about \$54,210, and labor required is 0.02 man-hour per ton.

Whittlesey, Norman K., and Arthur J. Cagle. A LINEAR PROGRAMMING ANALYSIS OF WHEAT PROGRAM CHOICES. Wash. State Univ., Agr. Ext. Serv., E.M. 2567, 9 pp., August 1965. (U.S. Dept. Agr. cooperating.)

The major objective of the analysis is to measure possible income effects of alternative choices presented by the voluntary wheat programs in the wheat-pea area of eastern Washington. The results are intended as examples only and are not to be considered as recommendations to specific farmers. The analysis

was performed through the use of linear programming techniques with data computation provided by the IBM electronic computer.

U.S. Department of Agriculture. AGRICULTURAL MARKETING: VITAL LINK BETWEEN FARMER AND CONSUMER. Mktg. Bul. 36, 26 pp., October 1965.

The publication is a product of Project 64: Changes in Agricultural Marketing--a review and evaluation of agricultural marketing in the United States made in 1964 by the staff of the Marketing Economics Division, Economic Research Service.

U.S. Department of Agriculture. EFFECTS OF CHANGES IN GRAZING FEES AND PERMITTED USE OF PUBLIC RANGELANDS ON INCOMES OF WESTERN LIVESTOCK RANCHES. U.S. Dept. Agr., Econ. Res. Serv., ERS-248, 33 pp., September 1965.

Total costs per animal for operating livestock ranches were about the same in each of the ranching areas of the West in 1960. In 1960, grazing fees were nearly 5 percent of cash operating expenses on cattle ranches and 3 percent on sheep ranches. If monthly grazing fees per animal unit had been raised an average of 20 cents, net incomes of the budgeted ranches would have been lowered a combined average of 7.6 percent.

U.S. Department of Agriculture. FARM REAL ESTATE TAXES: RECENT TRENDS AND DEVELOPMENTS. Econ. Res. Serv., RET-5, October 1965. 14 pp.

Taxes levied on farm real estate in 1964 totaled \$1,546.0 million, up 5.3 percent from 1963. Three States--California, Illinois, and Iowa--accounted for more than one-fourth of the total taxes levied on farm real estate in 1964. Most taxes on farm real estate are imposed by local units of government. In 1964 the U.S. average was \$1.51 an acre.

U.S. Department of Agriculture. FOOD COSTS: RETAIL PRICES, FARM PRICES, MARKETING SPREADS. Misc. Pub. 856, 16 pp., revised August 1965.

Summarizes major trends in farm and retail prices of food, marketing charges, and the relation between food costs and consumer income. Marketing charges have increased since 1947, but prices received by farmers have declined. Retail food prices have increased less than consumer prices generally.

U.S. Department of Agriculture. HANDBOOK OF AGRICULTURAL CHARTS, 1965. Agr. Handbook 300, 159 pp., October 1965.

Contains information on the overall agricultural economic situation, farm commodities, foreign agricultural trade, marketing, farm population, and family living. The book has 158 charts, most of them accompanied by tables of detailed data updated where possible into 1965.

Statistical Compilations

Bowles, Gladys K., and James D. Tarver. NET MIGRATION OF THE POPULATION, 1950-60, BY AGE, SEX, AND COLOR: VOL. 1.--STATES, COUNTIES, ECONOMIC AREAS, AND METROPOLITAN AREAS. PART 1, NORTHEASTERN STATES; PART 2, NORTH CENTRAL STATES; PART 3, SOUTH ATLANTIC STATES; PART 4, EAST SOUTH CENTRAL STATES; PART 5, WEST SOUTH CENTRAL STATES; PART 6, WESTERN STATES. U.S. Dept. Agr., Econ. Res. Serv., 1073 pp., May 1965. (Okla. State Univ. and U.S. Dept. Commerce cooperating.)

U.S. Department of Agriculture. U.S. FOOD CONSUMPTION, SOURCES OF DATA AND TRENDS, 1909-63, SUPPLEMENT FOR 1964. Suppl. to Statis. Bul. 364, 28 pp., October 1965.

Revises and updates bulletin issued June 1965. The tables contain data for 1963 and 1964 and revisions or corrections for earlier years. All data for 1964 are preliminary.

U.S. Department of Agriculture. CONVERSION FACTORS AND WEIGHTS AND MEASURES FOR AGRICULTURAL COMMODITIES AND THEIR PRODUCTS. Econ. Res. Serv., Statis. Bul. 362, 87 pp., June 1965.

U.S. Department of Agriculture. FARM INCOME, STATE ESTIMATES, 1949-1964. Econ. Res. Serv., FIS-199 Suppl., 135 pp., August 1965.

U.S. Department of Agriculture. SUPPLEMENT FOR 1965 TO STATISTICS ON COTTON AND RELATED DATA, 1925-1962. Econ. Res. Serv., Suppl. for 1965 to Statis. Bul. 329, 146 pp., October 1965.

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